The development and evaluation of a mindfulness-based intervention for incarcerated young men

Sharon Byrne

BSc (Hons) Forensic Psychobiology

MSc Forensic Psychology

MSc Psychological Counselling

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Academic Unit of General Practice and Primary Care

Institute of Health and Wellbeing

College of Medical, Veterinary and Life Sciences

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Abstract

Background There is considerable evidence that mindfulness-based interventions help in the treatment of psychological and emotional distress. Incarcerated young men are known to experience difficulties in these areas. However, the utility of mindfulness-based interventions among incarcerated young men remains largely unknown. This thesis set out to explore mindfulness for young men, aged 18-21 years, housed at Her Majesty's Young Offender Institute in Polmont, Scotland. The specific research objectives were to:

1. Develop a bespoke mindfulness-based course;
2. Determine recruitment and retention to the mindfulness course and research study;
3. Investigate the feasibility of data collection and potential effectiveness of the mindfulness course, in terms of its impact on impulsivity, mental wellbeing, inner resilience, mindfulness, and emotional regulation;
4. Explore the young men's experience of the course.

Methods The research was guided by the United Kingdom Medical Research Council guidance for developing and evaluating complex interventions. A scoping review assessed existing evidence for the use of mindfulness-based interventions in offending populations. A bespoke mindfulness-based intervention was developed and the feasibility of its evaluation assessed using a mixed-methods approach to data collection. Qualitative interviews with course participants (n=20), prison staff (n=4) and the mindfulness teacher (n=1) were conducted. Interviews with course participants and the mindfulness teacher were first subject to rapid appraisal to inform course development. The full qualitative data set were subject to in-depth thematic analysis to understand barriers to recruitment and retention and experience of the course. Quantitative measurements were targeted at key outcomes of interest: impulsivity, mental wellbeing, inner resilience, mindfulness and emotional regulation. SPSS was used to analysis the data.

Results The scoping review identified that there is currently no optimal mindfulness-based intervention for use with incarcerated young men. A standardised Mindfulness-Based Stress Reduction (MBSR) course was initially delivered and then required numerous adaptations to meet the young men's needs. Recruitment and retention was challenging; remaining low throughout the duration of the study despite trying several recruitment strategies and successive modifications to the intervention. Data collection was found to be

feasible at baseline and post-course but not at 3-month follow-up. Most measures used were age appropriate and demonstrated good internal consistency. A trend towards positive improvements by the end of the course was shown for: impulsivity (effect size: 0.72, p=0.001), mental wellbeing (ES: 0.50, p= 0.003), mindfulness (ES: 0.32, p=0.03), and inner resilience/meaningfulness (ES: 0.32, p=0.03).

Most young men spoke of finding the course boring, strange, and unfamiliar at first, but this changed as they began to experience benefit. They reported finding the 'body scan' and 'breathing techniques' most helpful. A range of positive experiences were described including better sleep, reduced stress, greater relaxation, enhanced sense of control, and improved relationships. Most of the young men said they hoped to sustain their mindfulness practices when released back into the community.

Conclusions Despite the challenges faced, preliminary findings suggested that mindfulness-based interventions have the potential to benefit incarcerated young men. More high quality research is required before definitive recommendations on the effectiveness of a mindfulness-based course for incarcerated young men can be made.

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Author's Declaration

I declare the content of this thesis to be all my own work.

The following Conference presentations have been made based on the material contained in this thesis:

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'Mindfulness in a Forensic setting' Scottish Mindfulness Research Community. University of Glasgow. February 2015.

Definitions/Abbreviations

BDI – Buddhist Derived Intervention

BPM – Buddhist Psychological Model

BIS - Barratt Impulsiveness Scale

CAMM - Child and Adolescent Mindfulness Measure

CBT - Cognitive Behavioural Therapy

DERS - Difficulties in Emotion Regulation Scale

EPHPP - Effective Public Health Practice Project

ES - Effect size

GHQ - General Health Questionnaire

GPPC - General Practice and Primary Care

HMYOI - Her Majesty's Young Offender Institute

MAAS - Mindful Attention Awareness Scale

MBA - Mind-Body Awareness

MBI - Mindfulness-based Intervention

MBCT - Mindfulness-based Cognitive Therapy

MBRP - Mindfulness-based Relapse Prevention

MBSR - Mindfulness-based Stress Reduction

MBSU - Mindfulness-based Substance Use

MRC –Medical Research Council

MVLS – Medical, Veterinary and Life Sciences

N/A - Not applicable

NHS – National Health Service

NICE – National Institute of Clinical Excellence

PPT – Personal Protection Training

PTSD - Post-traumatic stress disorder

QOL – Quality of Life

RAEC – Research Access and Ethics Committee

REC – Research Ethics Committee

RCT - Randominised Control Trial

RNR - Risk-Need-Responsivity

UK - United Kingdom

USA - United States of America

SAPOR - Scottish Advisory Panel on Offender Rehabilitation

SOC - Sense of Coherence

SPS – Scottish Prison Service

SPSS - Statistical Package for the Social Sciences

SMP - Structured Meditation Programme

TAU - Treatment as usual

TCS - Teen Conflict Scale

VM - Vipassana Meditation

YOI - Young Offender Institutions

95%CI – 95% Confidence Interval

Chapter 1 Introduction

Youth offending is a major problem around the world. It is associated with socio-economic deprivation, adverse childhood experiences, difficulties with regulating emotions and behaviour, poor mental health and low educational attainment [1-4]. A growing body of evidence suggests that such factors contribute to delayed maturational development and impaired social skills and status in these young men [5-9].

Effective evidence-based rehabilitative strategies are urgently needed for incarcerated young men [10, 11]. Many rehabilitative strategies used over the past forty years have been influenced by the 'Risk-Need-Responsivity' (RNR) model, which holds the opinion that rehabilitative interventions should take into account individuals' risk for re-offending, what can be changed to reduce that risk, and to recognise which needs are malleable and responsive [12, 13]. Educational level, cognitive and emotional skills, specific behaviours and mental health are seen as malleable and specific interventions have been introduced to help address them [14].

The most commonly researched interventions for those in custody are based on cognitive-behavioural principles [12, 15, 16]. Although cognitive behavioural approaches are well evidenced in general, the evidence remains limited in this population and it is recognised that they may need supplementation with other approaches [17]. Innovative interventions are likely to be required that are effective, sensitive and responsive to the individual offenders' level of risk and needs [14].

Mindfulness-based interventions are derived from ancient Oriental meditation practices that preferentially train attentional awareness, enhancing emotional and behavioural regulatory skills [18]. They have been secularised and used in a variety of settings, with initial courses being targeted at helping people with chronic medical conditions to cope better with their illnesses [19, 20]. Mindfulness-based interventions have good quality evidence for use in adult mental health conditions, such as anxiety [21-23] and depression [23-26], but less robust evidence in other areas, including the adolescent population [27].

In 2012, the Scottish Justice Department identified mindfulness as a potential treatment strategy to improve outcomes such as impulsivity, mental health and resilience for incarcerated young men in Scotland. Discussions between the then Chief Medical Officer

(CMO) for Scotland and the Scottish Government Community Justice Division stimulated an interest in commissioning a mindfulness-based course for incarcerated young men during 2012 and 2013. The University of Glasgow was approached to implement this proposal and funding to pay for the development, delivery, and evaluation of a mindfulness course was provided. Her Majesty's Young Offenders Institution (HMYOI) Polmont was identified as a suitable site for the research to take place, and it was there that a bespoke mindfulness course was delivered to seven consecutive groups of young men (n=48), aged 18-21 years, over a period of 19 months. It is this research, which I led as the employed researcher, with the support of my supervisors, which forms the basis of this thesis.

The specific research objectives of this thesis were to:

1. Develop a bespoke mindfulness-based course
2. Determine recruitment and retention to the mindfulness course and research study
3. Investigate the feasibility of data collection and possible effectiveness of the mindfulness course, in terms of its impact on impulsivity, mental wellbeing, inner resilience, emotional regulation, and mindfulness.
4. Explore the young men's experience of the course

The first step in the research was to explore the extent, nature, and range of knowledge about the use of mindfulness-based interventions in young men who offend. This necessitated conducting a scoping literature review. Following this, a bespoke mindfulness course was iteratively developed, based on feedback from course participants, and the mindfulness teacher. The aim was to create an intervention that was acceptable to the young men and could be adapted flexibly to meet their specific needs.

The course to be offered met the criteria of a complex intervention. It was based on Mindfulness-based Stress Reduction (MBSR), consisting of psycho-education components, experiential activities, and formal meditation practices. The MRC guidance (2008, 2013) is a framework designed to assist the researcher plan, carry out, and organise research on complex multi-component interventions to improve health [28, 29]. The MRC guidance outlines a series of non-linear processes that can assess different aspects of 'how', 'where', 'when' and 'if' an intervention works, or does not. The guidance is useful when seeking to

determine the feasibility, acceptability, and potential effectiveness of a novel intervention. As such, the United Kingdom Medical Research Council (MRC) guidance (2008, 2013) for developing and evaluating complex interventions was selected as an appropriate tool for structuring the research outlined in this thesis [28, 29].

The research used mixed methods to address the four objectives listed above. In this thesis, **Chapter 2** opens by introducing the common problems experienced by incarcerated young men. Particular attention is given to the high prevalence of impulsivity, difficulties with regulating emotions and behaviour, problems with stress management, and mental health issues that these young men face. This is followed by a discussion on current treatment and rehabilitative approaches offered to incarcerated young men. The chapter then concludes by discussing mindfulness and its potential usefulness for this population.

Chapter 3 reports on a scoping review conducted to assess the evidence-base for the use of interventions among incarcerated populations. The chapter describes the scoping review's methods; identifying, organising, integrating and then evaluating, in a systematic and reproducible manner, published and unpublished empirical literature in this area.

The aim of the scoping review was to help guide intervention development for the bespoke mindfulness intervention at HMYOI Polmont. The chapter summarises the extent, range, and nature of current research on mindfulness-based interventions in offending populations, including incarcerated young men.

Chapter 4 describes the methodology and research methods used in the research and presented in this thesis. This starts with an introduction to the research methodology, covering quantitative, qualitative, and mixed-method approaches. Philosophical principles underpinning each approach are introduced. A rationale for using a mixed-method approach is provided, before presenting specific details of data collection, management, and analyses used to address each of the four research objectives in this thesis.

Chapter 5 details how the bespoke mindfulness-based course was developed. The chapter tracks the refinements and modifications made during the seven iterations of the course, where changes were based upon the feedback from the young men and the mindfulness teacher. The chapter provides an outline of which components of the original course were

retained, which were modified, and why, before presenting an optimised version of the course.

Chapter 6 provides an overview of recruitment and retention to the course and the study evaluation. In this chapter, quantitative findings on numbers approached to take part, numbers recruited into the study and course, levels of course attendance, and numbers retained in the study and course are reported. Qualitative data from semi-structured interviews with the young men, the mindfulness teacher, and staff from HMYOI Polmont were used to understand better the recruitment and retention challenges and these are also reported in this chapter.

Chapter 7 explores the feasibility of data collection and possible effectiveness of the mindfulness-based course on selected outcome measures focusing on, impulsivity, mental wellbeing, inner resilience, mindfulness, and emotional regulation. The self-report outcome measures used are introduced, their appropriateness for this population discussed, and their internal reliability explored. Correlations were examined to determine the relationships between measures. The latter part of the chapter reports on the possible effectiveness of the mindfulness-based course. Finally, multi-linear regression modeling is used to explore independent predictors of outcomes.

Chapter 8 presents the thematic analysis of the views of the young men's experiences of the mindfulness course. The young men's views are supplemented with the views of the mindfulness teacher and HMYOI Polmont staff. Qualitative findings are then integrated with the findings from the quantitative outcomes from the previous chapter in order to provide a comprehensive synthesis of the findings.

Chapter 9 provides a general discussion of the research findings from the thesis as a whole, comparing the results with those of other studies, identifying the strengths and weaknesses of the research and making recommendations for further optimisation and future research.

Chapter 2 Background

This chapter begins by introducing common problems experienced by incarcerated young men, placing particular focus on impulsivity and regulation of emotion and behaviour and mental health. It discusses the current treatment and rehabilitative approaches offered, before moving on to explore the concept of mindfulness and its potential utility in this population.

2.1 Youth offending

Understanding the factors associated with offending behaviour is necessary in order to try to safeguard against future offending behaviour. Young men constitute around 5% of the incarcerated population in developed countries [30]. In Scotland, the rate of conviction for all males who offended in 2012 was 4.7%; however, for young males aged between 18-20 years, the rate was more than twice as high, at 11% [31]. The reoffending rate within one year of release was 33% for young males compared with 25% for men aged over thirty [10].

Most incarcerated young men have experienced early childhood adversity, involving physical or sexual abuse, neglect, or family dysfunction [1, 2, 32, 33]. They have also experienced socio-economic deprivation [34], have underachieved educationally, have been exposed to violence and substance misuse, and have associated with anti-social peers [33, 35-39]. Such challenging environmental and socio-economic conditions put these young men at greater risk of mental health problems such as anxiety and depression, and of trauma (physical and psychological) [40]. Indicators of early behavioural functioning and other individual risk factors such as conduct disorder, impulsivity, aggression and poor self-control are among the most consistent predictors of youth offending [1, 41].

Criminologists refer to such variables as ‘criminogenic needs’ (needs that are related to criminal activity), typically divided into two categories; static and dynamic. ‘Static’ are those that cannot be addressed with therapeutic input (age, gender, and criminal history). In contrast, ‘dynamic’ factors are those that may be amenable to therapeutic input and include level of education, cognitive skills including attentional capacity and self-

regulation, and mental health [42, 43]. Thus, through targeting dynamic criminogenic needs, rehabilitative programmes have the potential to address offending behaviours.

2.1.1 Impulsivity, emotional regulation, and stress management

The most prevalent dynamic risk factors common across all offending populations are impulsivity, difficulties regulating emotions and behaviours [44] and with managing stress [45]. Life stress impairs self-control in adolescents [46]. As highlighted, the majority of young men who go on to offend have usually experienced significant early psychosocial adversity, which can have detrimental effects on brain development, particularly in areas thought to be important in executing the type of cognitive control responsible for regulating emotional responses [47, 48].

The brains of young adults continue to develop and mature well into their twenties and beyond [49]. Regulating moods, impulses, and behaviours can be a challenging task for a young person during periods where multiple tasks and demands can tax their capacity to cope with stress [50]. The developing brain remains vulnerable to myriad personal, familial, peer, and wider social influences [51, 52]. Brain development in key areas responsible for attentional control and behavioural regulation is believed to progress more slowly in the male brain, where association cortices and functional connectivity take longer to mature [53].

Transforming Management of Young Adults in Custody (2013), a high-level report published by the United Kingdom (UK) Ministry of Justice, suggests that immaturity is an important consideration when working with impulsive and criminal behaviours. Ability to regulate emotions requires effective executive functioning, that is, the ability to inhibit inappropriate behaviour (inhibitory control), activate an appropriate response (activation control), shift and focus attention as required (effortful control), and to integrate information, plan, detect error, and modify behaviour as necessary [54, 55]. Maturational brain changes between adolescence and early adulthood may explain why some young people who offend early on seem to show decreases in impulsivity and improvements in self-control over time (*'adolescent limited offenders'*) [56]. During this stage of maturation, risk perception is refined, resistance to peer influence strengthened, anticipation of future consequences improved, and sensation seeking and impulsivity

lessened [8, 57, 58]. For those not obviously showing such maturation and improvement, seeking to assist the developmental process through targeted intervention makes sense.

Self-control theory proposes that individuals who receive insufficient parenting prior to the age of ten develop less self-control than their age-matched, better parented counterparts [59]. Muraven et al. (2006) suggest that an early deficit of nurturance i.e. lack of emotional and physical nourishment and care, increases a child's vulnerability towards developing and displaying impulsive behaviours, and when these individuals are faced with adverse social contexts (i.e. low socioeconomic status, deprivation, poor social bonds), there is a further increased risk of engaging in criminal activity [59].

Leonard et al. (2013) and Dodge (2006) highlight how early adversity, particularly childhood maltreatment and exposure to parental/caregiver's hostile behaviour/attitudes, is associated with the development of hypervigilance towards 'hostile' cues in the environment [32, 60] Maltreated young people are more likely to misinterpret benign situations as threatening and react aggressively, commonly referred to as a 'hostile attributional bias' [61]. Compensatory risk-taking behaviour such as drug use or criminal activity, which can serve to worsen their health and lead to a trajectory of incarceration is also more common in this group [38].

In general, stress that is perceived as 'uncontrollable' can rapidly impair performance on tasks requiring 'top-down', prefrontal cognitive control [62, 63], and has also been shown to impair self-regulatory ability in adolescents [46]. Exposure to such stressors is thought to direct processing away from higher cognitive functioning, behaviours instead being driven by emotion-based systems associated with increased vigilance and scanning of the environment for the detection of potential threat. This may lead to impairments in self-regulatory processing, where the individual has difficulty with the experiencing, interpreting, regulating, and managing of emotional state(s) [64].

It seems clear that incarcerated young men represent a particularly vulnerable group, with a need for effective interventions that can improve cognitive and emotional skills, and the ability to manage stress. However, once incarcerated the rehabilitative care and attention that these young men receive is sub-optimal, and there is often a mismatch between what they need and what they get [10, 65-67].

2.1.2 Mental health

Worldwide reports suggest that there is a high prevalence of undiagnosed and untreated mental health issues among young people who come into contact with the justice system [68-72]. In the United States of America (USA), it is estimated that between 70% and 95% of the young men who come in contact with the juvenile justice system have at least one psychiatric disorder [73] and up to two thirds have more than one [70, 74]. Multiple psychiatric diagnoses and other unmet mental health needs constitute potentially modifiable factors, which if left unaddressed are known to increase the risk of re-offending. In Young Offender Institutions (YOIs) in both the USA and UK, inadequate screening for mental health disorders, insufficient services and treatment, and staff lacking the necessary expertise to deliver effective interventions to this group of young men have been repeatedly highlighted [65, 75-77].

Prison health data on the prevalence of psychiatric disorders in the UK prison population suggest that 80% of the incarcerated population have two or more mental health disorders; typically a combination of a diagnosed mental illness along with substance use [4]. A recent analysis from the *Young Offenders Survey* conducted by the Scottish Prison Service (SPS) in 2013 at HMYOI Polmont (n=267), found that over two thirds (68%) of the young men who took part reported being intoxicated with alcohol at the time of their arrest (compared with 43% of adults). More than three-quarters (79%) of the young men reported having used drugs in the 12 months prior to their incarceration, and almost half (49%) admitted being under the influence of drugs at the time of their offence [68].

A recent comprehensive international systematic review and meta-analysis [77] examined the prevalence of mental health disorders in incarcerated adolescents (n=16,750; of which 13,778 were male) and found that among males 52.8% were diagnosed with conduct disorder, 11.7 % with attention-deficit/hyperactivity disorder (ADHD), 10.6% with major depression and 3.3% were diagnosed with a psychotic illness. Based on these estimates, incarcerated young men are 10 times more likely to suffer from psychosis, two to four times more likely to suffer from ADHD, and twice as likely to have depression than those in the general adolescent population [77]. Other common mental health problems noted among young males in custody are stress, anxiety, posttraumatic stress disorder (PTSD), self-harm, and substance misuse [78].

Longitudinal studies suggest that the high prevalence rates for mental health disorders among incarcerated men are evident not only on admission to prison but also that these disorders persist, and in many cases develop or get worse during their stay [71, 79]. The reasons for this are not entirely clear, but may be partially explained by latent/pre-existing mental health problems associated with early childhood adversity and/or abuse, substance misuse, impulsive personality traits, and/or the separation from family and friends that prison life entails, loss of autonomy and lack of purposeful activity [11, 31, 80]. Such stress can compound impaired mental health in these young men and it is particularly notable that incarcerated young males are 18 times more at risk of committing suicide than young males in the community [81].

Incarceration is an important factor when considering a range of future health outcomes, being associated with worse general health, worse social functioning across the life course, higher mortality rates and increased mental health problems [79, 82, 83]. Data from HMYOI Polmont indicates that inmates often perceive prison as an inherently unsafe environment, with 20% anticipating attack by another prisoner at some point during their stay [68]. Such chronic stressors have been suggested elsewhere in the literature as predisposing an individual to a variety of chronic illnesses and increasing the risk of developing mental health problems or exacerbating conditions [84, 85].

In the USA successful completion of mental health court programmes has been associated with reductions in recidivism and violence [86]. In the UK, the Bradley report - which presents a comprehensive plan to reduce recidivism - identified a number of deficiencies in the provision of mental health services for those incarcerated, for example lack of services and staff training to deal with the complexities of mental health conditions presenting [11] and a limited availability of psychological therapies to those in custody. If incarcerated young men's mental health needs are not addressed the chance of successful re-integration back into society on release is diminished [87].

2.2 Interventions available for incarcerated young men

Many countries around the world, including Scotland, place a high priority on the rehabilitation of young men who offend [69]. Within Scotland, the Scottish Advisory Panel on Offender Rehabilitation (SAPOR) is an independent body of experts on offender

management and rehabilitation. SAPOR is responsible for commissioning those services that have an established theoretical and empirical evidence base and are congruent with the '*What Works*' literature.

The *'what works'* guidelines stem from several published meta-analyses and systematic reviews of the international literature of interventions with the best evidence for reducing reoffending [12, 15, 16, 88, 89]. There is remarkable consistency in the findings. Punitive approaches have produced at best modest reductions in re-offending and in many instances have been associated with increased rates of re-offending. In contrast, rehabilitative approaches have effected lower rates of re-offending. Evidence of what works points towards *'targeted and specific interventions based upon a person-centred approach plus rigorous and consistent risk assessment'* [69].

A broad range of rehabilitative approaches have been shown to reduce recidivism [90]. Those with the greatest effect sizes are: behavioural and social learning interventions (ES: 0.39 with a 60% reduction in recidivism) [12]; family and parenting approaches (ES: 0.27 with a 52% reduction in recidivism) [91]; multisystemic therapy (ES: 0.24 with a 46% reduction in recidivism) [92]; and behavioural programmes (ES: 0.02 with a 40% reduction in recidivism) [93].

However, according to McNeill (2012), the reliance on recidivism rates fails to appreciate that the mere absence of offending does not signify desistance from crime, because a young person may not be caught, nor be compliant with societal/legislative norms and expectations i.e. it does not necessary imply 'successful' behavioural change [94]. In addition, the vast majority of findings used to inform the *'what works'* literature stem from North America. They are based largely on findings from adult populations. It is unclear how generalisable the findings are across cultures, countries, and in younger people.

To address this concern, Koehler et al (2013) carried out a systematic review and meta-analysis of correctional programmes offered for incarcerated young people in Europe [14]. Two-thirds of the included studies took place in the UK. From a pooled sample (n=7,940; mean age 17.9), the review found that behavioural and cognitive-behavioural interventions ranked highest in terms of the odds ratio (OR) of desistance from offending (OR = 1.73), whereas punitive and deterrent approaches were associated with a negative outcome (OR =

- 0.85). Further, sub-analyses revealed that programmes that were delivered in accordance with the Risk-Need-Responsivity (RNR) model were better still (OR = 1.90).

The RNR model operates according to a set of principles aimed at targeting criminogenic needs [12, 13]. In brief, the 'risk principle' suggests that those identified as 'high risk', i.e. more likely to re-offend, will benefit from more intensive treatment than those deemed 'low risk'. Thus, according to this principle, an offender with a complex and violent criminal history would require a more intensive treatment plan. The 'need' principle suggests that the intervention should primarily address those risk factors associated with re-offending i.e. 'crinimogenic need'. The 'responsivity' principle suggests that the style and mode of delivery for these interventions should be adapted to match the characteristics of the individual, such as learning style, level of motivation, personal and interpersonal circumstances [12].

Smith (2005) describes how current programmes offered in YOI's in Scotland aim to generate positive change by a) behavioural change i.e. helping individuals learn how to regulate and manage their emotions and behaviour, b) using a social learning approach i.e. teaching social and interpersonal skills, and c) cognitive reappraisal i.e. helping young people to think about their own and other people's behaviour in a different way. Thus, cognitive behavioural approaches to rehabilitation, rooted in social learning theory, appear to be the most commonly delivered approach in YOI's in Scotland, aimed at changing anti-social behaviour [95].

Interventions that adopt multiple approaches often have better results [95]. The '*What Works to Reduce Reoffending*' summary of the evidence suggests that the most favourable interventions in relation to reoffending rates focus on the whole range of an individual's needs [96]. The summary states, however, that there is a lack of adequate research in this area. According to Smith (2005) *"surprisingly little is known about the intensity and quality of intervention experienced by the general run of young offenders"* (p. 190) [95].

In the UK, evidence regarding the effectiveness of cognitive-behavioural approaches has also been described as limited [97]. Furthermore, Sapouna et al. (2011) point out that no outcome evaluations of accredited programmes have been conducted in Scotland [96], and a recent UK review suggested that cognitive behavioural programmes cannot be expected

to operate effectively in isolation [98]. Specific training, targeting emotion and behaviour regulation and stress, could conceivably augment existing rehabilitative strategies. Mindfulness is one such approach considered in this thesis.

2.3 What is mindfulness?

A consensus scientific definition of mindfulness remains elusive. The term 'mindfulness' originally stems from the Pali word 'sati', meaning 'remembering' or 'to remember' [99]. Pali is the language, native to the southern regions of Asia, in which much of the earliest literature of Buddhism is written. Translating this concept into a health-care context and academic settings has not been easy or straightforward.

One of the most commonly cited definitions of mindfulness is the distinct awareness that is cultivated through *"paying attention in a particular way: on purpose, and non-judgmentally"* p. 4 [100]. Although variations exist in the empirical literature regarding what mindfulness is/is not, most definitions appear to stem from this basic premise [101-103].

In an attempt to provide an operational definition of mindfulness, various research groups have developed theoretical models through which mindfulness is thought to work. These models are derived from multiple disciplines including psychology, cognitive and affective neuroscience, and Buddhist psychology. Together, these models uniformly highlight the complexity of the change process associated with mindfulness-based interventions.

One of the earlier psychological models proposed was by Baer (2003), who described mindfulness as *"the non-judgmental observation of the ongoing stream of internal and external stimuli as they arise"* p.125 [104]. The model emphasises the importance of deliberately observing such stimuli, noting their transient nature, and refraining from evaluating or labelling the content. According to this model, 'mindful awareness' is cultivated through self-regulation of attention on present-moment experience, underpinned by cultivating an attitude of acceptance. The ability to observe thoughts, emotions and behaviour, coupled with awareness of their interconnections, is fundamental to this practice [105]. The aim is to cultivate stable and nonreactive present-moment awareness, reducing cognitive vulnerability to habitual reactive modes of the mind that might

otherwise heighten stress and emotional disturbances. This model attributes non-reactivity, cognitive and emotional flexibility, and non-judgemental acceptance as being key mechanisms underpinning mindfulness.

Similar cognitive processes are also included in an operational definition proposed by Bishop et al. (2004), which suggests that the emphasis of mindfulness practice on the present moment enhances the capacity for sustained attention, attention switching, and inhibition of elaborative processing [18]. These skills are thought to allow attention to be redirected from depressive or anxious rumination back to the experience of the present moment (a view supported elsewhere in the literature) [26, 106, 107]. Bishop et al. (2004) also propose an attitudinal component in their model, referred to as '*orientation to experience'* [18]. They describe this as a feature, which encourages the practitioner to engender an attitude of curiosity, openness and acceptance towards thoughts, feelings or sensations. In summary, Bishop et al. (2004) propose two mechanisms of action underlying mindfulness: (1) self-regulation of attention and (2) adoption of an open and accepting orientation towards one's experience [18].

Shapiro, Carlson, Astin and Freedman (2006) propose a model of mindfulness that embodies three axioms: (1) intention, (2) attention, and (3) attitude. They emphasise that the three conditions have an interdependent relationship, and are seen as a constellation of mental factors that work in conjunction [101]. Using these axioms as a foundation, they propose a mechanisms of action model underlying mindfulness, which suggests that "*intentionally (I) attending (A) with openness and non-judgmentalness (A) leads to a significant shift in perspective*", which they term '*reperceiving'* p. 5 [108]. They classify reperceiving as a '*meta-mechanism of action',* from which four additional mechanisms stem: (1) self-regulation, (2) value clarification, (3) cognitive, emotional and behavioural flexibility, and (4) exposure. Shapiro and Carlson (2010) maintain that all of these components *"collectively lead to change and positive outcome"* p. 94.

More recently, Holzel et al. (2011) postulate that mindfulness meditation exerts its effects through: (a) attention regulation i.e. the ability to sustain and switch attention, (b) body awareness i.e. awareness of visceral and somatic sensations, (c) emotion regulation i.e. ability to reappraise, tolerate, extinguish, or reconsolidate emotional experiences, and (d) change in perspective of the self i.e. detachment from a static sense of self [109].

Integrating functional and structural neuroimaging studies with self-report and experimental data, they have proposed neural processes underlying these four components. In this model, mindfulness practice is associated with altered neural activation patterns and neuro-plastic changes in the anterior cingulate cortex (attention regulation); insular cortex, temporal-parietal junction (body awareness), fronto-limbic network (emotional regulation), and default mode network structures (change in perspective of self). The authors suggest that the mechanisms described here work synergistically, establishing a process of enhanced self-regulation.

From a Buddhist Psychology perspective, the Buddhist Psychological Model (BPM), suggests those mechanisms underlying mindfulness as: concentration/attention regulation, nonattachment and non-aversion, acceptance/compassion, ethical practices, and decreased mental proliferation i.e. a lessening of activity within the mind [110].

Despite on-going scientific efforts, neither psychological nor neural processes underpinning the mechanisms of action for mindfulness are entirely clear. However, a recent systematic review and meta-analysis was conducted to identify potential psychological mechanisms underlying mindfulness-based interventions, their effects on psychological functioning and wellbeing, and to evaluate the strength and consistency of evidence for each mechanism [20]. Reductions in cognitive and emotional reactivity showed the strongest evidence for mediating the impact of mindfulness training on outcomes, with moderate evidence for mindfulness, rumination and worry. Preliminary evidence supported active roles for self-compassion and psychological flexibility [20].

Common to all of the psychological definitions described above is the importance of self-regulation of attention, which requires the ability to sustain and anchor attention on what is occurring in one's field of experience (sustained attention), deliberately and intentionally switching attention from one aspect of experience to another (attention switching) and the ability to inhibit elaborative cognitive processes (cognitive inhibition).

The next section will explore more fully how these attentional capacities are recruited and their functioning enhanced via mindfulness training.

2.3.1 Attentional capacities

Attention is a fundamental aspect of mindfulness, which involves *"observing the operations of one's moment-to-moment, internal and external experience"* p. 4 [101]. Such self-regulation of attention engenders a direct experience of events in the mind and body, thereby allowing for increased recognition of the changing field of thoughts, feelings and sensations as they naturally arise in the present moment. This requires the practitioner to be actively alert to what is occurring in the field of perception, distinguishing the practice from that of simply practising relaxation.

Husserl (1970) refers to this capacity as a method of *reflective attentiveness*, disclosing the individual's *"lived experiences"*, that is, attending to the authenticity of the experience, as it appears in that moment in time p. 240 [111]. Behavioural and neurophysiological studies have demonstrated that meditation improves attentional performance [112, 113]. For example, studies, based on self-reported data, found enhanced attentional performance in meditators [114-117].

2.3.1.1 **Sustained attention**

The ability to focus on a single task and to filter out irrelevant environmental events is a fundamental capability of the human attentional system [118], commonly referred to as sustained attention, conflict monitoring, or executive attention, and is one of the three attention networks proposed by Posner and Petersen (1990) [119]. In mindfulness, training sustained attention can be described as honing the capacity to deliberately direct attention repeatedly to a pre-determined stimulus, such as the visceral sensations of the breath. The practitioner strives to maintain a close and sustained observation of a single point of awareness. Sustaining the attention in this way 'anchors' awareness to the present moment, allowing the practitioner to be fully present [18, 120], and is associated with structural and functional brain changes in the insular cortex, which is thought to have a key role in emotional regulation [109]. Brefczynski-Lewis et al. (2007), using functional MRI, reported that experienced meditators had more activation in the network of brain regions typically involved in sustained attention than their novice counterparts [121].

2.3.1.2 **Attention Switching**

Attention switching is fundamental to almost all cognitive tasks, and deficits in this attentional process have wide-ranging and cascading consequences for development [54, 122]. In mindfulness training, attention switching is described as the ability to shift the focus of attention between objects or mental states at will. This attentional ability involves disengaging from competing mental activity that is entering into one's conscious awareness, instead focusing attention back to the stimulus being observed. This ability to engage and disengage different sub-systems of attention is thought to involve preferential activation and neuro-plastic change processes in the anterior cingulate cortex [109], and enables the practitioner to become more aware of internal and external distractions.

2.3.1.3 **Cognitive inhibition**

Cognitive inhibition is thought to take place via frontal brain regions acting to inhibit lower axis structures such as the amygdala in the limbic system [109] and refers to the 'top-down' ability to inhibit secondary elaborative processing of thoughts, feelings and sensations [101]. Dreyfus (2011) suggests that by deliberately refining skills for sustaining attention, practitioners strengthen their cognitive control, increasing their ability to retain information and thus see the 'true significance' of mental activity, rather than being carried away by otherwise implicit reactions [120]. Limiting the scope of attention to the present moment may result in the de-automatisation of one's habitual judgmental tendencies [101].

Current conceptualisations of mindfulness, including both psychological and neurological viewpoints, consider that the effects are being derived from the development of cognitive capacities to observe and respond to stimuli in an open, non-reactive and health promoting manner. Evidence from systematic reviews suggests that a key mechanism of action for mindfulness is preferential training of attention [123]. Attention is an integral component of the executive system necessary for managing cognitive demands and regulating emotions [119]. Deficits or high repetitive demands on this system may compromise its functioning, resulting in attentional difficulties, trouble with controlling emotions and impulsive reactive behaviours [54, 60, 85, 113]. Mindfulness is promoted as a training method that encourages the active participation in specific exercises designed to increase cognitive functioning and control [123].

2.4 Standardised mindfulness interventions

The two most extensively employed and evidenced mindfulness-based interventions are: Mindfulness Based Stress Reduction (MBSR) and Mindfulness Cognitive Behavioural Therapy (MBCT) [20, 124]. MBCT derives from MBSR [103, 125]. Both are secular variants of traditional Buddhist meditation teachings and Hatha Yoga postures.

MBSR is an eight-week training in formal mindful meditation practices (sitting meditation, body scan, mindful movement based on Hatha Yoga). This group programme was originally developed to facilitate improved adaptation to long term medical illness such as the management of chronic pain [19], but MBSR is now widely used as a coping resource for dealing with physical symptoms and psychological/emotional distress. The format is mainly experiential and psycho-educational, with considerable in-session experience aimed at developing mindful skills through practice, group interaction and discussion. In addition, participants are encouraged to integrate this new learning into everyday living through both formal (daily meditation practice) and informal practices (bringing mindful awareness to cognitions, sensations, emotions and behaviours during day-to-day living, such as: walking, eating, washing the dishes). Alongside these weekly sessions, which typically last two and a half hours, participants are also encouraged to commit a certain amount of time each day to formal self-practice (about 45 minutes), throughout the duration of the eight week training and are provided with audio recordings that guide them through these mindfulness meditation exercises. In standard MBSR, there is also an ‘all day’ silent session, which is usually held on the sixth week [125].

MBCT is a meditation programme based on the integration of MBSR and CBT [103]. MBCT has a very similar format to MBSR, with a manualised eight-week skills-training group programme, but was designed specifically as a preventative treatment for people with recurrent depression [126] to help them become more aware of, and relate differently to their cognitions, emotions and bodily sensations. The programme teaches skills that allow individuals to disengage from habitual, automatic and dysfunctional cognitive routines, as a way to reduce future risk of depressive relapse [103]. MBCT is currently recommended by the UK National Institute for Health and Care Excellence (NICE) guidelines as suitable for individuals who have experienced three or more episodes of depression [127].

2.5 Evidence for mindfulness

Mindfulness-based interventions are becoming very popular within clinical and non-clinical settings alike aimed at improving both psychological functioning and coping with physical conditions [21, 104, 128-133]. However, many of the studies to date have been of low quality and have centred on feasibility work, with small sample sizes, are non-randomised, have no control group, or fail to include an active comparator group [128, 133]. For those studies that have included control groups, the majority used wait-list or treatment as usual.

To determine whether the core components of a mindfulness-based intervention are in fact directly affecting meaningful change, it is necessary to test the MBI to an active control that matches the MBI in terms of non-specific factors (e.g. structure, group format, number and duration of sessions, therapist training and qualifications, location) but does not contain the core components of the mindfulness training (i.e. breath practice, body scan and mindful movement). Two studies, using control conditions that meet this standard, reported limited and specific effects from the mindfulness training, when compared with the active control (Williams et al., 2014; Maccoon et al., 2012).

Maccoon et al (2012) assigned participants recruited from a non-clinical population either MBSR or an active comparator group, the Health Enhancement Program (HEP). Overall, both groups showed significant improvements on participant reported outcomes for anxiety, distress, medical symptoms, and hostility. There were no effects of intervention (i.e. MBSR did not fare better than HEP). Although, compared to HEP, MBSR training did lead to significant reductions in thermal pain ratings (i.e. perception that pain is brought on by excessive heat or cold).

Similarly, Williams et al (2014) compared MBCT with both Cognitive Psychological Education (CPE) and Treatment As Usual (TAU) in preventing relapse to Major Depressive Disorder (MDD) in participants in remission following at least 3 previous episodes. Allocated treatment had no significant effect on risk of relapse to MDD over a 12-month follow-up period. However, on subgroup analysis, when those with early childhood trauma was scrutinised, significantly higher effects of MBCT over the active control group and TAU were observed. In fact, evidence is accumulating that MBCT might

confer greatest benefit to those most at risk i.e. those reporting adverse childhood experiences (Ma & Teasdale, 2004; Kuyken et al., 2015)

Notwithstanding these limitations, systematic reviews, meta-analyses and RCTs suggest that mindfulness-based interventions may be potentially useful in numerous relevant domains, including the management of anxiety [21, 23], stress [134], depression [24, 26, 104], trauma [25], and addictive behaviours and substance misuse [135, 136].

Further, aside from the two aforementioned studies (i.e. Macoon et al. 2012; Williams et al. 2014) other studies that have included active comparator groups suggest that, in general, mindfulness-based interventions are as effective at improving mental health and wellbeing as other commonly used interventions in this context, such as CBT or antidepressants [25, 133]; but little to suggest that they are better.

In addition, systematic review suggests that mindfulness-based interventions may also enhance cognitive functioning in clinical populations (depressive disorders) [137]. Individual empirical studies have also reported significant improvements in executive function [138], attentional function [139], emotional regulation skills, adaptive coping skills, self-efficacy, well-being and quality of life [24].

Statistical meta-analyses of mindfulness interventions for the adult population, in both clinical and non-clinical settings, have shown a range of effect sizes [20, 21, 23, 128-130, 133, 134, 140-143], most reporting small to medium effects (Cohen's d ranging from 0.20 - 0.70), with those reviews employing more strict inclusion criteria reporting a trend towards smaller, but more consistent treatment effects [129]. These reviews are briefly discussed below.

Baer (2003) summarised the empirical research (n=22 studies, seven of which were RCTs) on the utility of mindfulness-based interventions (MBSR, MBCT, and variants of these interventions), for both clinical and non-clinical populations [140]. Findings were largely supportive and favoured MBIs with a statistically significant mean effect size of 0.59 across a wide range of medical and psychiatric conditions. The largest effect size was for depression (ES: 0.86) and the smallest for pain (ES: 0.31).

In comparison, a subsequent systematic review and meta-analysis by Grossman et al. (2004), based on the results from controlled and observational studies of MBSR training in clinical and non-clinical populations, found improvements in mental health and physical health (ES: 0.50) associated with mindfulness training, which were similar in magnitude regardless of study design i.e. observational versus controlled [21]. However, the authors cited recurrent problems with methodological weakness in study design and reporting, rendering findings less robust and requiring caution when interpreting their clinical significance.

Bohlmeijer et al. (2010) reviewed eight RCTs, which delivered MBSR programmes to adults with chronic medical conditions (n=667) [129]. The results showed beneficial effects for anxiety (ES: 0.47), psychological distress (ES: 0.32), and depression (ES: 0.26). When studies of lower quality were removed from the analyses, the effect size for anxiety was reduced to 0.24.

Hofmann et al. 2010, reviewed 39 MBI studies (RCTs, controlled trials, and observational studies) delivering mindfulness for a range of health problems (n = 1,140) [23]. Effect sizes reported suggested that mindfulness-based therapy was moderately effective for reducing anxiety (Hedges' g = 0.63) and depression symptoms (Hedges' g = 0.59) from pre- to post- treatment in the overall sample. In patients with anxiety and mood disorders, mindfulness training was associated with much larger effect sizes (Hedges' g) of 0.97 and 0.95 respectively. Effects were maintained at follow-up but notably were not associated with number of treatment sessions attended.

Fjorback et al. (2011), reviewed 21 RCTs (n= 1,992) using standard MBSR/MBCT interventions [130]. The review supported the effectiveness of MBSR in improving mental health conditions, and reducing symptoms of depression, anxiety and stress, for clinical and non-clinical populations alike, whilst MBCT was particularly effective for recurrent depression. A range of effect sizes was reported individually for each condition. MBIs were effective at reducing perceived stress/psychological distress (ES range: 0.30-0.64; RCT n=8), improving depressive symptoms (ES range: 0.26-1.34; RCT n= 14), and anxiety (ES range: 0.23-1.54; RCT n= 8)

De Vibe et al. (2012) included 26 RCT's (n = 1,456) in their meta-analysis. MBSR was found to have a moderate and consistent positive effect on overall mental health outcomes in clinical populations (Hedge' g = 0.50) and non-clinical samples (Hedge' g = 0.62) [141]. Medium effect sizes were reported for measures of anxiety (Hedge' g = 0.53), depression (Hedge' g = 0.54), and stress/distress (Hedge' g = 0.56). MBSR interventions improved outcomes measuring different aspects of personal development (Hedge' g = 0.50) and quality of life (Hedge' g = 0.57), mindfulness (Hedge' g = 0.70) and somatic health (Hedge' g = 0.31). The authors reported that effect sizes were not particularly influenced by length of intervention or self-reported practice, but were positively correlated with course attendance.

In 2014, Goyal et al. published a comprehensive meta-analysis, incorporating a total of 47 RCTs, (n= 3,515), to determine the effectiveness of meditation programmes in improving stress-related outcomes in clinical populations (the sample mainly comprised a general primary care population) [133]. MBIs had the best evidence compared to other meditation programmes, and improved anxiety immediately post-intervention (ES: 0.38), dropping slightly at 3-6 month follow up (ES: 0.22); depression immediately post intervention (ES: 0.33) again dropping slightly at 3-6 month follow up (ES: 0.23); and pain (ES:0.33). Low level evidence for improved stress/distress and mental health related quality of life were also reported. Insufficient evidence was seen for health related behaviours such as sleep, substance use and weight control. Goyal et al. (2014) concluded that MBIs were comparable in effectiveness to other active treatments, such as CBT, exercise and relaxation training. Goyal et al. (2014) drew attention to four main methodological inconsistencies; high rates of study attrition, lack of allocation concealment, lack of blinding, and lack of intention-to-treat analyses.

2.6 Mindfulness and the youth population

There is a small evidence base supporting the utility of mindfulness-based interventions for children and young people [27, 139, 144-147]. Zoogman et al. (2014) conducted a meta-analysis that included 20 studies (n= 1,914) to determine the usefulness of mindfulness-based training for young people (age range of 6-21) [27]. Most of the interventions required adaptations to the original MBSR protocol, in order to accommodate for the developmental needs of this population and the context in which the intervention was

delivered. Mindfulness was found to be useful overall, with a small pooled effect size (ES) of 0.23. Clinical populations showed higher effects (ES: 0.50) than non-clinical populations (ES: 0.20). However, most of these were pilot studies and therefore the evidence is currently limited.

2.7 The potential of mindfulness to help incarcerated young men

Based on the evidence presented above there are several reasons to hypothesise why mindfulness may have particular relevance for incarcerated young men.

Mindfulness appears to have the potential to address a number of psychological and emotional processes and states that are related to the 'dynamic' risk factors associated with offending behaviour [148-150]. For example, difficulties with regulating emotions and behaviour, poor cognitive abilities and coping skills, and poor mental health have all been postulated as important determinants of subsequent offending behaviour among young people. Systematic review evidence supports the view that mindfulness training is associated with improvements in cognitive and emotional regulation [131], a key mechanism of action for MBIs [20]. In addition, the literature supports the use of mindfulness as a treatment strategy for anxiety and depression [130, 133], both of which are highly prevalent in the youth offending population [77].

It is hypothesised that mindfulness training preferentially improves attentional control; young male offenders are particularly vulnerable in terms of brain development and maturation [5]. Mindfulness meditation has been shown to strengthen neural pathways between areas of the prefrontal cortex and limbic system associated with regulating the stress response and emotional experience [109]. Furthermore, a primary outcome of enhanced mindfulness is the improved capacity for experiencing and tolerating negative affect and dysregulated emotional states [151], both common findings among young incarcerated males [136]. Thus, a mindfulness-based intervention may serve to address a key construct underlying impulsive behaviours, widely recognised as important causal factors for many forms of offending [152].

Mindfulness training may teach individuals how to deal more skilfully with their mental reactions to stressors. Mindfulness is a mental state that involves awareness, attentiveness, and acceptance of the moment [19]; it is negatively related to a wide array of dysregulated behaviors, including anger, hostility, aggression [153], and self-harm [154]. The increased level of self-awareness derived through a mindfulness practice could strengthen an individual's capacity to observe such states, from a more detached perspective, label the experience, and in turn regulate these negative affective states. Thus, instead of responding habitually by engaging in anti-social activities and/or criminal behaviour as a means of avoiding distressing feelings and thoughts, mindfulness encourages the individual to objectify their destructive cognitive and affective processes by seeing them as passing phenomena [150].

It is hypothesised that, through regular practice of mindfulness, one can learn to be less reactive to intense emotional states, without resorting to violence, criminality, the use of drugs or alcohol or other mind-altering substances [155-157]. The '*What Works'* report suggests that offenders are more likely *'to desist from offending if they manage to acquire and control over their own lives and a more positive outlook on their future prospects'* p. 24 [96]. The report suggests that interventions aimed at enhancing coping skills and psychological resilience are more likely to lead to a reduction in reoffending [96].

Moreover, there is evidence to suggest that cultivating certain strengths such as 'inner resilience' may help these young people succeed, in spite of their early adversity [158]. Resilience implies the ability to use adaptive coping mechanisms and skills, in varying degrees, to deal with life-stresses [158]. Resilience theory is focused on strengths and positive characteristics rather that deficits; focusing on healthy development; achieving positive outcomes when faced with challenging or 'threatening' situations; coping successfully with traumatic experiences; and avoiding negative paths linked with risk [159]. According to Samuelson et al. (2007), criminal behaviour can be attributed to an inability to deal effectively with social stressors, such as deprivation, stress, and relational conflict; in this context teaching vulnerable young people resilience skills is desirable, if not essential [157].

2.8 Conclusions

Youth offending behaviour is particularly problematic with young men offending at more than double the frequency of adult counterparts.

Psychosocial stressors impact strongly on brain maturation and development, with incarcerated young males seemingly more vulnerable in this regard, having high reported levels of conduct disorder, impulsivity, depression and anxiety.

Prevalent theories and current evidence support the view that punitive treatment strategies are ineffective. Rehabilitative approaches are well evidenced, but remain poorly understood, in terms of optimal strategies. It is suggested that interventions should target the risk, need, and responsivity of the individual young person, with special focus on 'dynamic' criminogenic needs, such as self-regulation capacities and mental health. CBT is commonly used in YOIs, but alone is unlikely to constitute optimal treatment. Another approach that theoretically could address aspects of the 'dynamic' criminogenic needs is mindfulness.

A theoretical basis for its use with incarcerated young men is that its proposed mechanisms of action overlap with areas of psychological and emotional difficulties common to this group. Mindfulness is thought to operate via enhancing cognitive and emotional regulation, and has a considerable evidence base for effectiveness in clinical populations, including for emotional regulation, stress management and for anxiety and depression. However, the majority of existing evidence for mindfulness is confined to adult populations with distinct medical or psychological conditions. It is unclear how relevant mindfulness interventions may be to incarcerated young men. The next chapter presents a scoping review of the extent, range, and scope of evidence supporting the use of mindfulness in this context.

Chapter 3 Scoping Review

This chapter presents a scoping review of the evidence for mindfulness-based interventions in offending populations. The main aim of the review was to guide intervention development for the planned mindfulness intervention at Polmont HMYOI. The need for a scoping review became apparent after searching the literature for existing reviews. The aim of the scoping review was to investigate and summarise the extent, range, and nature of current research on mindfulness-based interventions in offending populations, including incarcerated young men.

Section 3.1 presents what was learnt from the initial search for existing review evidence. Subsequent sections present the scoping review that was undertaken, detailing the methods, results and conclusions.

3.1 Existing reviews of mindfulness training in offending populations

Prior to embarking on a new systematic or scoping review it is important to establish the need for such work, so as not to waste time or resources [160]. Therefore, an initial search of the literature was undertaken.

Search terms used for this purpose were: mindful* OR meditat* OR breath* AND offend* OR forensic OR youth offend* OR prison OR inmates OR incarcerat* OR correctional OR juvenile offend* OR crim* AND review OR meta-analysis OR literature. Search filters to enable the identification of existing systematic reviews across the various databases were identified via the resource suggested here: http://www.york.ac.uk/inst/crd/intertasc/sr.htm

Following this search, two reviews were identified. The first was a narrative review by Himelstein (2011), which describes empirical research on the effects of meditation-based interventions in correctional settings [149]. This review presented an overview of research findings from identified studies, along with descriptions of the disparate meditation techniques that have been used in correctional settings, such as transcendental meditation (TM); mindfulness-based stress reduction (MBSR); and vipassana mediation (VM).

The second was a systematic review by Shonin et al. (2013) on the use of Buddhist-derived interventions in correctional settings and included eight published controlled trials of such interventions in adult offenders [150]. Unlike a narrative review, a systematic review follows a strict protocol, and identifies, appraises and synthesises research evidences from original studies [161, 162]. Section 3.2 provides a comparison of scoping, narrative and systematic reviews.

Each review had major limitations. The Himelstein review lacked a clearly identifiable approach when selecting, appraising and synthesising the evidence, whilst the Shonin review had a limited scope in terms of the type of studies included i.e. included studies had to employ a control group and qualitative studies were excluded. Thus both left potentially important gaps in the evidence-base for mindfulness-based interventions in correctional settings. Additionally, neither review presented findings from the youth offending population and thus neither offered enough evidence to guide intervention development for the planned pre-post feasibility study in the current thesis.

Thus a decision was made to carry out a scoping review (see section 3.3) which included the existing reviews as a source of evidence, but also built upon them by seeking to answer questions that they had not asked, such as whether or not any qualitative research had been conducted in this context, and to what extent. This review was particularly interested in the effects of mindfulness-based interventions for incarcerated young people, especially males, as this was the target population in the current thesis.

3.2 Why a scoping review?

A scoping review enables the reviewer to:

- Conduct a comprehensive review of the potential extent, range and nature of existing evidence
- Map key concepts underpinning a research area
- Identify the main sources and types of evidence available

- Identify important gaps in the published evidence base

- Direct future research and service development.

Scoping reviews share many characteristics with systematic reviews, being transparent, systematic and replicable; and in common with narrative reviews they provide a comprehensive synthesis of previously published information [163]. However, narrative reviews do not set out to present evidence of methodological rigour characteristic of both scoping and systematic reviews [164]. In addition, there are distinct differences between these approaches, in terms of the focus of the research questions, intentions and purpose of the review, methodologies and study designs included, as well as how the evidence is collated and presented [159, 164, 165]. The main differences between systematic, scoping and narrative reviews are summarised in Figure 3.1.

Figure 3.1 A comparison of the characteristics of a systematic, scoping, and narrative review.

Systematic Review	Focused research question
	Inclusion/exclusion criteria usually defined at outset
	Synthesises the evidence
	Strict methodology requirements
	Formally assesses the effectiveness of studies
	Generates a conclusion in relation to the research question
	Quality assessed
Scoping Review	Broad research question
	Inclusion/exclusion criteria can be developed post hoc
	Presents an analytical reinterpretation of the literature
	Incorporates a range of study designs and methodologies
	Examines the scope (breadth)
	Describes the features of research activity
	Quality not an initial priority
Narrative Review	Addresses one or more reserach question
	Inclusion/exclusion criteria may not be made explicit
	Describes and appraises published papers
	Methodology not made explicit
	Provides a general debate, appraises previous papers and identifies gaps in reserach
	Quality appriasal not typically undertaken

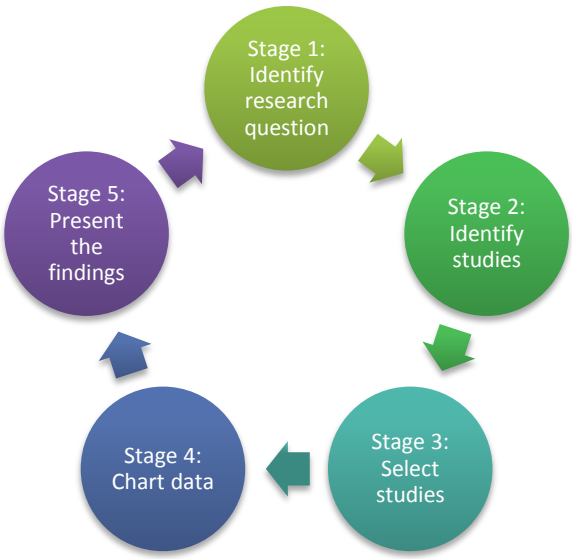
A scoping review is most relevant when there is comparatively little known about a topic [165]. Neither of the existing reviews discussed above provided the range and extent of information required to determine the types of mindfulness-based interventions most suitable for incarcerated young men. A scoping review also allows the inclusion of studies

other than randomised controlled trials (RCTs) or controlled trials (CTs) and may thus identify published studies that could help inform intervention development such as stakeholders' views. Given the limited evidence base identified in the two reviews reported above, a scoping review approach seemed most suited to developing a better understanding of the literature in the area of offending and mindfulness.

3.3 Methods

As advocated by Arskey and O'Malley (2005), the scoping review followed a five-stage approach, but also incorporated the more recent recommendations made by Levac et al. (2010) [165, 166]. These recommendations included: clarifying and linking the purpose of the review with research questions (stage one); balancing feasibility with breadth and comprehensiveness of the scoping process (stage two); using a collective team approach when selecting studies (stage three) and extracting data (stage four); and incorporating a numerical summary and qualitative thematic analysis, reporting results and considering the implications of study findings to practice (stage five). These stages are outlined in Figure 3.2.

Figure 3.2 Summary of the framework stages



3.3.1 Research Questions

The research questions for this scoping review were:

- What types of *studies* have been published?
- What *populations* have been included?
- What *intervention* strategies have been used?
- What *outcomes* have been assessed?

3.3.2 Identifying relevant studies

In January 2014 a systematic search of the literature was conducted in nine major electronic bibliographic databases and information repositories (MEDLINE, PsycINFO, EMBASE, CINAHL, ASSIA, Science Direct, Cochrane Library, Web of Science, and Allied and Complementary Medicine Database - AMED). To identify any published and/or unpublished work ProQuest Dissertations & Theses Database was also searched.

Following advice from an information scientist (Dr Maggie Lawrence) based at Caledonian University, initial search terms were devised (Figure 3.3). A broad definition of offending which included adult offenders and female offenders was implemented at this stage. For mindfulness, terms were based upon previous reviews examining mindfulness interventions in clinical populations [167, 168]. For offending, search terms were based upon those employed by Shonin (2013), but were extended to include the key words ‘youth offend*’ and ‘juvenile offend*’. The search strategy also included hand searching of reference lists for identified studies not readily obtained via the database search. Studies were deemed to be relevant, at this stage, if the title included one or more of the agreed search terms.

Selected subject headings were combined with key words relating to mindfulness and offending to create a search strategy that was finalised for use in MEDLINE (Figure 3.3). The search strategy was modified as required for use in other databases, using Boolean operators, search symbols and controlled vocabulary.

Figure 3.3 Search terms used

Subject Headings: 'Meditation', OR 'relaxation therapy' OR 'relaxation' OR 'Breathing Exercises'

Key words: 'mindful*' OR 'meditat*' OR ' breathing techni*' OR 'breathing exercis*'

Combined with: 'forensic', OR 'youth offend*' OR 'prison*', OR 'inmate*' OR 'incarcerat*' OR 'correctional' OR 'offend*', OR 'crim*', OR 'juvenile offend*'

3.3.3 Selecting the studies

Stage 3 was an iterative process involving two reviewers; myself and Dr Robert Simpson (RS). RS was a fellow PhD student, who had recently completed a systematic review of mindfulness-based interventions in people with multiple sclerosis. Supervision was provided by Professor Stewart Mercer (SM) and Professor Sally Wyke (SW). As is common in scoping reviews [169], inclusion/exclusion criteria were devised post hoc. As studies were identified, they were first read, and as the range of research became increasingly familiar, the inclusion criteria were decided upon. A key consideration was their usefulness in informing intervention development. This process took place in consultation with both supervisors. Studies were selected for inclusion if they met the following criteria

1. They contained at least one of the three main techniques of MBSR (i.e. breath awareness; body awareness and; mindful movement). This criterion was selected as it most closely represents the original model introduced by Jon Kabat-Zinn, which has been widely used since its inception [125]

2. They focused on offenders (any gender, adult, youth, and sexual offenders), whether incarcerated, or being rehabilitated in the community

3. They included any type of methods.

Studies were excluded if they were non-human, were written in a language other than English, or published prior to 1980 (the inception of MBSR) [134]. No restrictions were placed on study design or quality.

All relevant articles were then screened using the inclusion/exclusion criteria to select eligible papers. Two reviewers (myself and RS) carried out initial title and abstract screening, working independently and then reconvening to discuss and agree the outcomes. If the relevance of a study was unclear from the abstract, then the full paper was sought.

Copies of the full studies were then obtained for relevant papers. In some papers, the techniques implemented were not made explicit and authors' were contacted in an attempt to determine whether the intervention met the inclusion criteria. As is considered good practice [165], full studies were then read by both reviewers independently, to determine if they met inclusion criteria; this process was overseen by both supervisors. During initial abstract and subsequent full text screening discrepancies were, in the main, resolved by mutual agreement. In the few cases where ambiguity remained, the full text was thoroughly reviewed by one of the supervisors who had expertise in mindfulness and in systematic reviews (SM), and consensus reached.

3.3.4 Charting the data

This stage involved 'charting' key aspects of the information derived from the primary research papers being reviewed. Following Arskey and O'Malley's (2005) advice, this process worked through various stages, involving synthesising and interpreting the data by sifting, sorting and charting the material according to key issues and themes and then extracting the relevant information from the individual papers [165].

Data were extracted from included studies using a template developed to reflect the main aim of the scoping review i.e. to investigate the extent, range and nature of the research evidence available. To consider extent, the number of papers and their year of publication were recorded. To consider range, country of origin, methods employed, setting and population receiving the intervention were recorded. To consider nature, intervention characteristics, such as type of intervention, content, duration and frequency of delivery/exposure and outcomes assessed were recorded. A completed example of the template used can be seen in Appendix 1.

A trial charting exercise was conducted and overseen by both supervisors to help hone data extraction skills and ensure the process remained consistent with the research question and purpose. This step allowed consistency in the data charting process and provided assurance as I familiarised myself with this process, especially so given the multitude of methods included.

Quality appraisal was used in this study to guide knowledge synthesis and assess whether the papers included in the review were 'fit for purpose' [160] , following the recommendations of Daudt, van Mossel, & Scott (2013) [170]. It was not carried out with the intention of fitting studies into a 'hierarchy of evidence' but simply as a means to provide a comprehensive and practical overview of the evidence.

Quality appraisal was carried out in two stages. Firstly, all papers were categorised according to methodological approach, which included RCTs, CTs, and observational studies such as pre-post-study design, semi-structured interviews, focus groups and multiple qualitative approaches. A modified version of the Kolehamainen et al. (2010) categorisation flow chart was used for this purpose. Secondly, quality appraisal tools appropriate to each method used were assigned. Appendix 2a and 2b provides a more detailed description of these tools, including examples of how they were implemented in this study and precautions taken whilst using them.

For the qualitative studies, a quality appraisal tool based on Spencer, Richie, Lewis and Dillon's (2003) 'Framework for Assessing Qualitative Evaluations' [171] was used. An overall rating category does not feature in the qualitative assessment tool used. Thus, both supervisors (SM, SW) and myself devised and attached the following predefined codes to summarise the overall quality of each paper; (a) very well (80% or more of the quality indicators were met) (b) well (between 60- 80% of the quality indicators were met), (c) quite well (between 40-60% of the quality indicators were met) and (d) not well (less than 40% of the quality indicators were met). To assess the quality of the quantitative studies the Effective Public Health Practice Project (EPHPP) quality appraisal tool developed by Thomas, Ciliska, Dobbins and Micucci (2004) was used [172].

The search also identified three studies that employed a 'mixed-methods' approach, using both quantitative and qualitative data. These were subjected to the same criteria outlined above for each respective approach.

Procedures were also put in place to minimise the risk of bias given that quality appraisal is necessarily subjective. These were:

1. Two independent quality appraisers

2. Comparison of results and discrepancies identified

3. Regular meetings with the research supervisor (SM), to discuss further any discrepancies, resolve these through discussion and consensus, and seek clarity regarding any outstanding questions.

3.3.5 Presenting the findings

The purpose of this final stage was to provide a structure to the literature identified. Results are presented according to the narrative synthesis method outlined by Petticrew and Roberts (2006), which allow findings from multiple studies to be summarised and explained by constructing the 'story' i.e. the narrative that emerges from reading, extracting from, quality appraising and reconsidering included studies [160]. Whilst Pettigrew and Roberts (2006) suggest that, in the main, a narrative synthesis is presented in words, it does also allow for some statistical evidence to be used in the construction of the narrative [160].

Findings were organised based on extent (publication dates), range (types of *studies and populations* included*)* and nature (*intervention* strategies used and *outcomes* assessed). This was done in order to help construct the narrative and compare between disparate interventions, when considering effectiveness. Where studies reported statistical outcome data, such as mean and standard deviation (SD), statistical methods were used to calculate standardised effect sizes (ES) (Cohen's 'd'). Effect sizes for the intervention were then categorised, as per Cohen's classification of: ES $\geq$ 0.2 = small, ES $\geq$ 0.5 = medium and ES $\geq$ 0.8 = large. In studies that did not present data convertible to standardised effect sizes, 'p' values were reported instead. A senior statistician within the Robertson Centre for

Biostatistics at the University of Glasgow (AMcC) provided advice on the appropriate statistical tests to use in this instance. For example calculating the ES for between group data involved using pooled variance; a method for estimating variance for different populations when the mean of each population is different, but where it can be assumed that each population is the same.

In the following section, results are presented using a combination of figures, tables and script.

3.4 Results

3.4.1 Overview of the results

The search yielded a total of 485 papers, after removing duplicates (n=44). Of these, 456 were excluded because they did not meet the inclusion criteria at abstract screening i.e. they did not specify or did not use a mindfulness-based intervention in an offending population.

From the remaining 29 research papers, 13 were excluded following detailed scrutiny of the full paper. Exclusions were made because the intervention was not based on mindfulness i.e. some studies used a transcendental meditative practice; a pranayama-based intervention i.e. teaching specific breathing techniques; or examined mindfulness as a component of another treatment i.e. Dialectical Behavioural Therapy (DBT).

Following hand searching of the reference sections of selected papers, three additional papers were retrieved. This resulted in 19 publications being included in the scoping review. Of these, 16 were original, empirical, research studies; two were secondary analyses of data from a study which had already been identified and included; and one study was presented in two papers i.e. one presenting quantitative results and the other qualitative results.

The process of identification of included studies is summarised in Figure 3.4.

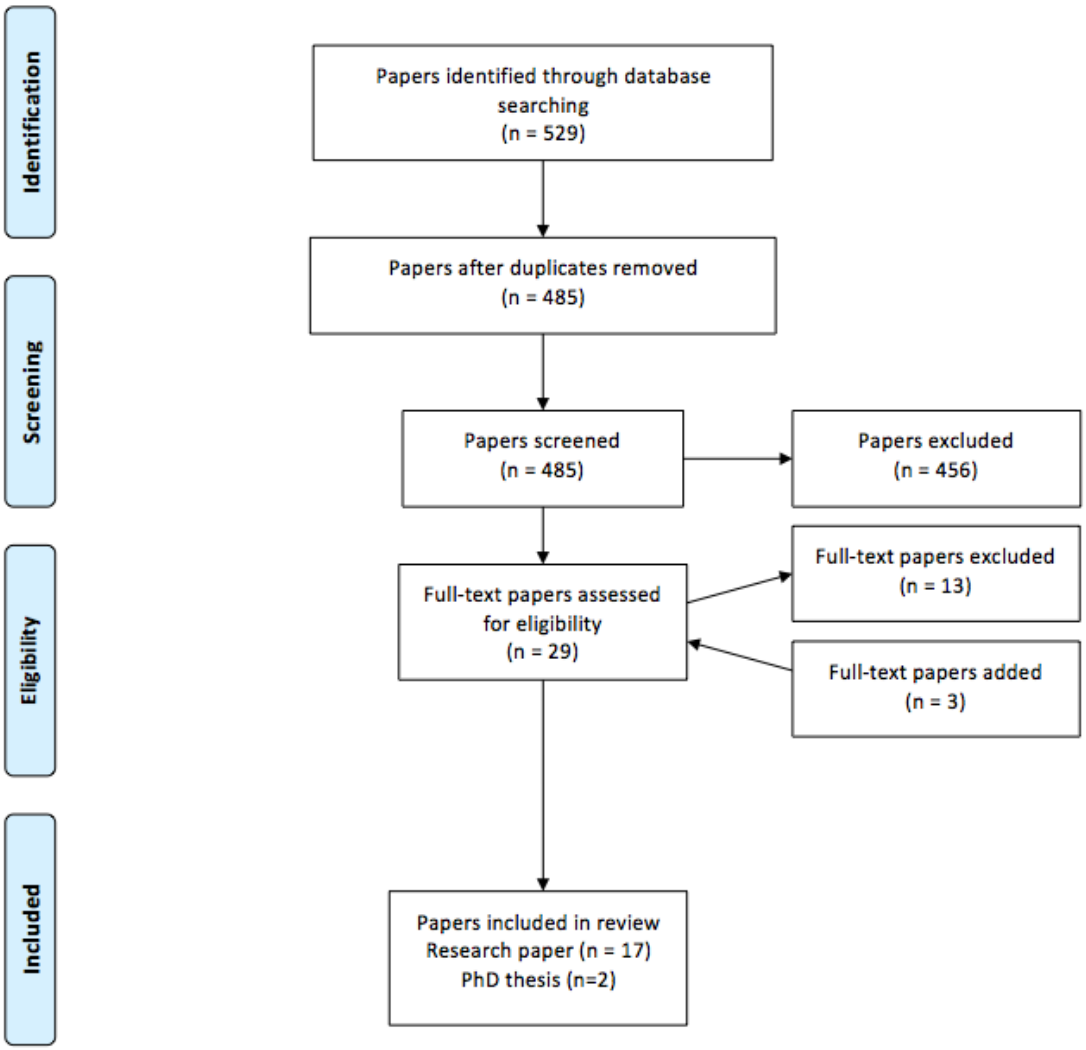
Amongst the 19 studies that the review identified, four papers had not been subjected to peer-review; specifically, two Indian studies were published on the Vipassana Research

Institute website (http://www.vridhamma.org) and thus were considered not to have undergone an independent peer review [173, 174]; and another two were unpublished PhD dissertations [175, 176].

There were only two instances of discrepancy in paper selection, both of which involved one of the reviewers marking a paper as "maybe" with the other coding it as "include". In each case, the full papers were retrieved and read by the first supervisor (SM) to resolve the discrepancy. Reliability of descriptive data extraction process was 100% i.e. there were no discrepancies at all.

Each of the selected studies was categorised according to methods using a modified version of the Kolehamainen et al. (2010) categorisation flow chart. Ten studies used only quantitative methods, three only qualitative, and three mixed-methods. The two published secondary analysis of an original study included in the review were also appraised.

Figure 3.4 PRISMA Flow diagram for paper screening results



3.4.2 Extent of research

Publication dates ranged from 1995 to 2014, 10 studies (71%) being published in 2006 or later. Both of the dissertations included in this review were completed in 1998. Neither of these was represented in the above figure, as they were not published.

3.4.3 Range of research

3.4.3.1 **Studies**

Table 3.1 provides an overview of the studies included in this review. No studies were conducted in the UK, the majority being carried out in the USA (69%). A variety of different study designs were used; four of the 16 studies were RCTs (three published papers and one unpublished dissertation). Six of the 16 studies were non-randomised control trials and three used mixed-methods. One publication [174] reported findings from several disparate studies using a range of study designs and including different populations. Where relevant, the results from each of these studies will be discussed. Sample size varied markedly between studies, eight studies being based on small numbers; ranging from 22 [177] to 48 [178], and six being based on a larger samples, ranging from 127 [156] to 1,953 [157]. Amongst the RCTs, sample sizes also varied considerably, ranging from 24 [155] to 143 [176].

There were three qualitative studies; using semi-structured interviews [177, 179, 180]. One of these studies described using field notes, team meetings and informal conversations with jail officials in their data analysis, to augment interview data.

Table 3.1 Study characteristics

Variables	Description
Country	USA (n =11)
	India (n = 3)
	Israel (n = 1)
	Taiwan (n = 1)
Study Design	Randomised Control Trial (RCT) (n=4)
	Non randomised Control Trial (CT) (n= 6)±
	Mixed methods (n=3)
	Semi-structured interviews (n=3*)
Population [X]	Male Adult Offenders (n= 5)
	Female Adult Offenders (n = 2)
	Mixed Gender: Adult Offenders (segregated groups) (n=2)
	Male Adolescent Offenders (n =5)
	Mixed Gender: Male Adolescent and Female Adult (n=1)
Intervention Type	Vipassana (n=6, plus 2 secondary analyses)
	Mindfulness-Based Stress Reduction adapted (MBSR-a) (n=3)
	Structured Mindfulness Meditation (n = 3)
	Mind Body Awareness (MBA) (n=2)
	Mindfulnes-Based Substance Use (MBSU) Intervention (n=1)
	Mindfulness-Based Relapse Prevention (MBRP) (n=1)
Outcome Measured	Mental health (n = 8)
	Problematic behaviour (n = 7)
	Self-regulation and emotional states (n=7)
	Quality of life and well-being (n = 4)
	Substance use (n = 3)
	Mindfulness (n =3)
	Personality, social and relational attitudes (n = 3)
	Influence of therapist (n=1)

± Two papers report on two or more studies; main study design used was CT
*One study[180] augmented semi-structured interview data with field notes, team meeting data and informal conversations with jail officials.
[X] Two studies did not specify gender. However, Perelman et al. (2012) has been noted in other papers as using male adult offenders and therefore this classification has being applied here too.

3.4.3.2 **Populations, attrition, and follow-up**

Ten out of the 16 studies took place in adult prison populations. Five focused exclusively on adult males, two on adult females and three included both sexes, although interventions were delivered in separate groups. Five out of the 16 studies focused on incarcerated young males. One study from India did not report on gender [180]. Across the studies there were approximately 3,335 participants included; however, this figure omits one study [180], where exact participant numbers were unclear. Of these 3,335 pooled participants, 2,329 (70%) were male adults, 736 (22%) were female adults, and 165 (5%) were male adolescents; no female adolescents were included. One study is not represented in this

figure as it did not specify gender [180]. Ages of the included participants varied, ranging from 14-63 years, as did ethnicity (Table 3.2). From the three studies that reported details of education attainments [173, 181, 182], few participants had attended or graduated from college. Mental health problems were not routinely reported, but in the four studies [156, 173, 177, 182] that did cover these issues, details collected focused on substance use, depression, anxiety or a history of traumatic experiences i.e. sexual, physical or emotional abuse.

Minimum [157, 176, 181], medium [157] and maximum-security [156, 157, 173, 174, 180, 183] facilities were included, as well as addiction treatment units [155, 157, 177], a residential detention facility for females [182], a juvenile correctional facility [175, 178, 184, 185], a rehabilitation community (Hermon Prison) [177] and a human service agency for adolescent sex offenders [179].

A variety of other factors, such as prisoners sentencing profiles, were relatively diverse (i.e. security category, conviction status, and sentence length). Such information was not uniformly collected. Six studies [156, 173, 177, 180, 185] reported prisoners' offending profiles, ranging from serious offences such as murder, physical- or domestic violence, sex offences, or drug-related offences, to less serious crimes such as property crime and theft. Two of the Indian studies also included participants incarcerated for 'dacoity' [173, 180] (a term used for banditry), kidnapping [180], dowry death [180] and illegal immigration [180]. Two studies [156, 173] reported that, in the main, participants were serving a life sentence, with another two studies [155, 182] providing a general overview of sentence length (i.e. residing in a detention center whilst awaiting official sentence which could be 5-15 years). In the main the degree of reporting of descriptive data about participants was variable, two studies collecting no demographic or descriptive data [157, 174] (other than age range).

Table 3.2 presents an overview of participant characteristics from the full range of studies included in this scoping review.

Table 3.2 Participant Characteristics

Study	Gender (n)	Age (mean/SD)	Ethnicity	Education level	Offence type	Sentence length	Mental/Medical Health
Bowen et al. (2006) USA	Male (242) Female(63)	(37.48/8.67)	European American (186;61.1%) African American (38; 12.6%), Latino/a (26; 8.4%) Native American (24; 7.8%) Alaskan Native (7; 2.4%) Asian/Pacific Islander (7; 2.4%) Multiethnic or other (17; 5.4%).	Graduated from college (53; 17.3%) High school education (174; 57.2%) Middle school or less (78; 25.6%)	Driving under the influence Theft Drug procession Prostitution	NR	History of substance dependence
Ronel et al. (2011) Israel	Male (22)	Between 20 -50	NR	NR	Domestic violence Property crime Sex offences Drug-related	NR	History of substance dependence (22:100%)
Perelman et al. (2012) USA	Male (127)	Between 21 -63 (35.4/9.34)	African American (91; 71.7%) Caucasian (22; 17.3%) Other race (7; 5.5%)	NR	Violent offence (103; 81.1%)	Life sentence (34; 26.8%) Life without parole (36; 28.3%)	Hypertension/ diabetes (46) Smokers (53) SU disorder (16) Mental illness (10)
Chandiramani et al. (1998) India	Male (120) (adult and adolescent)	58%< 30 35%> 30 7.5%unknown	NR	Primary education (37) Higher secondary (64) College (12) Illiterate (4)	Murder (37) Drug-related (31) Theft/dacoity (11) Other (19)	1-5 years (4) 6-10 (7) Life (12) NA (94)	Anxiety and depression (8) GAD (5) Adjustment disorder (5) Depression (2) Agoraphobia (1)
Ranganathan et al. (2008) India	NR (Apx 40)	50% <30 50% >30	NR	NR	Miscellaneous (21%) Sex offense (17%) Murder (or attempted murder) (17%) Dowy death (11%) Theft/dacoity (11%) NDPS (11%) Kidnapping (6%) Fake visa/illegal immigration (6%)	NR	NR

Study	Gender (n)	Age (mean/SD)	Ethnicity	Education level	Offence type	Sentence length	Medical conditions
Sumter et al (2009) USA	Female (33)	NR	White (19; 57.6) Black: (14; 42.4)	Some high school (15;45.5%) High school/GED (8;24.2%) Attend college (9;27.2%) Bachelor's degree (1;1%)	NR	20-24 Weeks (in lieu of sentencing which could be 5-15 years)	Emotional Abuse Y: (19; 61.3) N: (12; 38.7%) Physical Abuse Y: (20; 64.5%) N: (11; 35.5%) Sexual Abuse Y: 13 (41.9%) N: 18(58.1%)
Flinton (1998) USA	Male (42) (adolescent)	Between 15-18	NR	NR	NR	NR	NR
Derezotes (2000) USA	Male (14) (adolescent)	NR	NR	NR	Sex Offense	Delivered in community	NR
Himelstein et al. (2011a), USA	Male (32) (adolescent)	Between 14-18 (16.75)	Latino (19) African-American (5) Caucasian-American (3) Pacific Islander (3) Mixed race (2)	NR	NR	NR	NR
Himelstein et al. (2011b), USA	Male (48) (adolescent)	Between 15-18 (16.3)	Latino (32) African-American (6) Mixed race(4) Filipino (3) Tongan (2) Indian (1)	NR	NR	NR	NR
Barnert et al. (2014), USA	Male (29) (adolescent)	Between 14 -18 (16.3/0.09)	Latino (65.5%)	NR	NR	NR	NR
Perkins, (1999), USA	Female (143)	(33.9)	Hispanic (17; 11.8%) Non Hispanic (125; 88.1%)	High school diploma (72.1%)	NR	NR	NR
Murphy, (1995), USA	Male (31)	(32.7; 7.3)	White (9;29%) Hispanic (4; 12.9%) Black (16; 51%) American Indian (2; 6.5%)	10 or less years of education (9; 30%) 11-14 years of education (22; 70%)	NR	NR	NR
Lee et al (2010), Taiwan	Male (24)	(40.7)	Taiwanese 24	NR	Possessions or sale of illicit drugs	One year	NR

NR = Not Recorded. Apx = Approximately. Y=Yes. N=No. GAD = General Anxiety Disorder.

Studies defined attrition differently; in two ways i.e. those who didn't complete the intervention or those who didn't complete the outcome measures. Attrition rates for those who did not complete the intervention were variable, only half of the quantitative studies reporting this data (7/13). Only two studies defined intervention completion; i.e. attending 80% or 63.5% of sessions [157, 176]. Overall, the range for attrition was 10% - 40%, with a mean (SD) value of 25% (12.2%). Attrition percentages and reasons are detailed in Table 3.3.

Table 3.3 Attrition rates as defined by intervention completion

Study (country)	Study design	Intervention (sample size)	Non-completers (%)	Reason (n)
Murphy, 1995 (USA)	RCT	MBSR (n=35)	10%	Asked to leave (3) Released (1)
Barnert et al. 2014 (USA)	CT	MBA (n=29)	10%	Released (6)
Himelstein et al 2011 (USA)	Pre, post	MBSU (n=60)	20%	Released (12)
Samuelson et al 2007 (USA)	CT	MBSR (n=1,953)	30%	Not reported
Flinton 1998 (USA)	CT	SMP (n=62)	30%	Administrative issues (16)* Released (4)
Perkins 1998 (USA)	RCT	MBSR (N=232)	37%	Released/transferred/ WRIT± (32) Dropped out (39)
Himelstein 2012 (USA)	Pre, post	MBA (n=47)	40%	Released (15)

Study design: RCT = Randomised control trial, CT = non-randomised control trial
Interventions used: MBSR = Mindfulness-based stress reduction, MBA = Mind Body Awareness
MBSU = Mindfulness-based substance use, SMP = Structured meditation programme
* A whole cohort was removed from the study as one of the camps failed to adhere to the study requirements removing participants from the group and adding new members who had not completed baseline measures.
± No specification of WRIT was provided

Although not reporting intervention attrition, two of the CTs provided details for attrition in terms of data collection. Bowen et al. (2006) reported a 47% attrition rate at three month follow up, citing participants unreachable post-release; whilst Perelman et al. (2012) reported a 42% attrition rate following completion of the VM intervention, this figure rising to 56% at one year follow-up.

3.4.4 Quality appraisal

The quality appraisal scores are presented to help facilitate interpretation of the data extracted from the identified papers. Agreement between the two reviewers was high, any discrepancies or uncertainty being resolved through subsequent supervisory meetings.

Overall, the studies identified were generally weak in terms of quality. Findings for the quantitative studies are presented first, below, and then summarised in Table 3.4**.**

3.4.4.1 **Quantitative studies**

None of the published RCTs can be taken as indicative of high quality evidence for the effectiveness of mindfulness-based interventions in offending populations due to methodological limitations, including unclear recruitment technique [155, 182], small sample sizes [155, 182, 183], high attrition rates [176], failure to control for important confounders [182, 183], use of non-validated measures [155] and inconsistent reporting [155]. Eight [156, 157, 173-175, 178, 181, 182] of the 13 papers which presented quantitative data were assigned a score of 'weak', four [155, 178, 183, 185] were assigned a 'moderate' score, and only one [176] was assigned a score of 'strong'. However this latter study was an unpublished PhD dissertation and only included incarcerated adult females [176], limiting generalisability.

Studies scored poorly in relation to presentation of the potential for selection bias (10/13) [155-157, 173-175, 181, 182, 184, 185] and descriptions of withdrawal and dropout (6/13) [155, 156, 173, 174, 181, 182]. However, blinding (10/13) [155, 156, 173-176, 178, 181, 183, 185], study design (7/13) [156, 173-175, 178, 184, 185] and confounders (7/13) [155, 156, 173, 174, 178, 183, 184] scored 'moderately' on quality. The tool suggested that a 'moderate' score should be assigned if blinding was not described; this was the case for all nine of the 13 studies included. The category where studies scored most 'strongly' was data collection methods (6/13) [155, 174-176, 181, 183]. The completed quality appraisal rating sheet for each of these criteria is provided in Appendix 3. Those receiving a quality score of moderate or above (n=5) were deemed to have met the quality threshold.

Table 3.4 Quality scores for the quantitative studies included in this review

Study	Quality Score
Vipassana Meditation	
Perelman et al. (2012)	Weak
Bowen et al. (2006)	Weak
Khurana & Dhar (2000)	Weak
Chandirmani et al. (1998)	Weak
Mindfulness-based stress reduction	
Samuelson et al. (2007)	Weak
Perkins (1998)	Strong
Murphy (1995)	Moderate
Mind Body Awareness	
Barnert et al. (2014) (Mixed Methods)	Moderate
Himelstein et al. (2011) (Mixed Methods)	Weak
Structured meditation programme	
Sumter et al. (2009)	Weak
Flinton (1998)	Weak
Mindfulness-based substance use	
Himelstein et al.(2011) (Mixed methods)	Moderate
Mindfulness-based relapse prevention	
Lee et al. (2010)	Moderate

Shading indicates that quality threshold had been met

3.4.4.2 Qualitative studies

Quality scoring of the qualitative studies followed the coding criteria devised by the research evaluation team outlined in section 3.3.4. A score of 'not well' was assigned to two studies, 'quite well' to one study, three being rated as 'well'. None of the qualitative studies was allocated a score of 'very well'. The quality scores for the qualitative studies, stratified by intervention type, are presented in Table 3.5. Those who received a quality score of 'well' or above were deemed to have met the quality threshold.

Table 3.5 Quality scores for the qualitative studies included in this review

Study	Quality Score
Vipassana Meditation	
Ronel et al. 2011	Quite well
Ranganathan et al. (2008)	Not well
Mind Body Awareness	
Barnert et al. (2014) (Mixed Methods)	Well
Himelstein et al. (2011) (Mixed Methods)	Well
Structured Meditation Programme	
Derezotes (2000)	Not well
Mindfulness-based substance use	
Himelstein et al. (2012) (Mixed Methods)	Well

Shading indicates that quality threshold had been meet

3.4.5 Nature of research

This section provides a summary of the types of interventions included, mode of delivery, teaching procedures used and outcomes reported.

3.4.5.1 Interventions

All interventions included at least two of the three core MBSR techniques i.e. breath awareness, body awareness and/or mindful movement. The interventions, included in this review, were characterised as:

(1) Vipassana Meditation (VM)
(2) Mindfulness-based Stress Reduction (MBSR)
(3) Mind-Body Awareness (MBA)
(4) Structured Meditation Programme (SMP)
(5) Mindfulness-Based Substance Use (MBSU)
(6) Mindfulness-Based Relapse Prevention (MBRP).

Vipassana was the most frequently used intervention [156, 173, 177, 180, 181, 186, 187] (n=7 studies, including 2 secondary analyses). All interventions varied in terms of:

Setting: The quality and conditions of space provided differed significantly, some facilities being modified to suit the needs of the meditation course. For example, in one study, taking place in a 'humanistic' prison, a gymnasium was renovated to create a live-in

meditation hall, with areas for sleeping and eating [156]. Another course was delivered in a less bespoke setting i.e. the corner of a sports hall, alongside prisoners who were exercising at the time [157].

Content: Three interventions merged mindful meditations with relaxation techniques, either Jacobson's progressive muscle relaxation [175, 176] (Jacobson, 1987) or Benson's relaxation response [182] (Benson, 1975). Two interventions (used in three of the studies) primarily consisted of psychotherapeutic components, specifically adapted for adolescent offenders [184, 185, 188]. One study was tailored towards drug rehabilitation [178], another targeting relapse prevention [155]. Six [156, 173, 174, 177, 180, 181] of the interventions were heavily influenced by Buddhist teachings. Three [157, 176, 183] that followed the MBSR protocol included education on stress reactivity and its adverse effects on wellbeing.

Dose and duration: This ranged from one to ten hours per session, being delivered daily over a period of 10 days or weekly over a period of six to 10 weeks (1-2 hours daily). One study included an intensive day package, as an adjunct to the 10-week course.

Teacher characteristics: Seven studies did not include this data [157, 174, 176, 179, 180, 185, 189]. Of those that did, the information was generally vague; five studies [156, 173, 177, 181, 182] reported using experienced meditators (two or more), without further specification. One reported that the teacher trained in MBSR at the Massachusetts Medical Center and was closely supervised by a clinician who had extensive experience of teaching meditation to incarcerated adults [183]. This was the only study that referred to clinical supervision being provided. Three courses were delivered by 'experienced' clinical psychologists, and included learning both psychotherapeutic and meditation skills [155, 178, 184]. The number of teachers delivering the course varied. In one study correctional officers sat-in for safety reasons [157]; in another, course assistants were present to serve food and help with 'logistics'[177]. Three studies [156, 177, 181] reported that teachers volunteered, receiving no remuneration. This act seems to have exerted a positive influence on participants' level of engagement and subsequent desire to share such kindness with others; indeed, this factor formed one of the main themes in the qualitative analysis: 'Perceived Goodness" (see Table 3.10). In one study [184], the author assumed the role of both researcher and facilitator, raising the risk of researcher bias.

Format: All VM courses were delivered as an intensive silent retreat, where participants spent up to 10 hours per day in meditation and were provided with daily teaching on Buddhist philosophy, followed a vegetarian diet and were separated from the rest of the prisoners and social contacts. The mindfulness-based approaches were more secular in comparison and were instead integrated into the daily prison routine, with classes taking place weekly or bi-weekly, over one-to-two hours, closely adhering to the MBSR-type protocol.

Institutional constraints: Various authors noted that administrative, organisational and institutional constraints such as shared cells and other constraints of prison life, limited full adherence to the interventions. For example, space, privacy and noise constraints limited participants' ability to practise the meditation exercises in a number of settings. In one case, the MBSR sessions had to be foreshortened into 1-hour slots, being delivered twice a week. In some studies resources were sparse or limited, with no yoga mats, no recording devices allowed [180], and no provision of homework material allowed [157, 176, 178]. One study [178] was unable to keep track of homework adherence due to a violent incident which resulted in all pens being confiscated.

Table 3.6 provides a general overview of the core components and teaching orientation of each of the interventions included in this review.

Table 3.6 Included interventions characterised by the type of therapy or skills they were teaching

Intervention	Description	Studies that used this approach
Vipassana Meditation (VM)	Intensive 10-day, silent residential. Daily schedule consists of: • 8- 10 hours of sitting meditation, interspersed with regular break, • Teachings on Buddhist principles. Participants are required to follow five precepts; including abstention from: (1) killing; (2) stealing; (3) sexual activity; (4) lying; and (5) taking intoxicants. All participants are required to follow a vegetarian diet.	Perelman et al. (2012) Ronel et al. (2011) Ranganathan et al. (2008) Bowen et al. (2006) Khurana & Dhar (2000) Chandiramani et al. (1998)
Mindfulness-based Stress Reduction (MBSR)	Clinical intervention, originating from VM. Delivered over a duration of 8 weeks, lasting 2.5 hours, usually comprising of 15-20 participants. (*No day retreat included). Programme consists of three core mindfulness practices: • Sitting meditation • Body scan • Mindful movement Didactic teaching covers stress reactivity and its adverse effects on wellbeing. Time allocated to group discussion, catering for issues arising with learning and integrating these new techniques. Homework material provided and participants encouraged to maintain a daily meditation practice outside of the group sessions.	Samuelson et al. (2007) Perkins (1999) Murphy (1995)
Mind Body Awareness (MBA)	Group based intervention specifically tailored to the diverse needs of incarcerated youths. Delivered over a duration of 10-weeks, lasting 90 minutes. Weekly session includes: • Check-in (i.e. sharing present moment feelings) • Specific experiential emotional-intelligence activities (60 minutes) • Formal meditation (30 minutes) Strong emphasis on the clinical psychotherapy component, which covers the following topics; (1) goodness, (2) mindfulness, (3) active listening, (4) impulse regulation, (5) emotional-intelligence, (6) empathy, (7) forgiveness, (8) transforming negative core beliefs, (9) cause and effect, and (10) interpersonal relationships. All sessions end with a dedication of 'positivity'	Barnert et al. (2014) Himelstein et al. (2001)

Intervention	Description	Studies that used this approach
Structured Meditation Programme (SMP)	These interventions contained techniques such as: • Breath-awareness practices • Walking meditation • Moving meditation (Hatha Yoga). Basic instructions are provided, including guidance on meditation techniques. Discussions, reflections, and group sharing of experiences contributed to the overall content of intervention.	Sumter et al (2009) Derezotes (2000) Flinton (1998)
Mindfulness-Based Substance Use (MBSU)	This intervention is specifically orientated towards drug education and the development of self-awareness. Typically delivered over a period of 8 weeks, lasting 1.5 hours. Sessions include: • 'Mindful' check-in; • Experiential group activities (including mindfulness); • Group discussion; • Didactic training. Drug education activities include: (a) drug category awareness; (b) potential implications of mixing certain drugs; (c) positive and negative aspects of drugs and; (d) physiological effects of drug use. Didactic aspects are used to open up discussion and as a platform to unpack personal experiences and develop self-awareness.	Himelstein (2011)
Mindfulness-Based Relapse Prevention (MBRP)	The intervention is specifically designed to target factors that often lead to substance use relapse such as cognitive, emotional and behavioural reactivity. Delivered weekly over a 10-week period, lasting for 1.5 hours. It incorporates mindfulness practices in the style and structure of: • MBSR (Kabat-Zinn, 1990) • MBCT (Segal, Williams, & Teasdale, 2002) integrated with: • Relapse prevention therapy (Marlatt & Gordon, 1984). The programme is split into two sections (1) relapse prevention (covering weeks 1 -4) and (2) mindfulness (covering weeks 5 -10).	Lee et al. (2010)

VM = Vipassana Meditation. MBSR = Mindfulness Bases-Stress Reduction. MBCT = Mincfulness-Based Cognitive Therapy.

3.4.5.2 **Outcomes**

Studies reported on a wide range of outcomes, mainly coming from self-report questionnaires. One study used an objective physiological measure [183] and another included behavioural measures [176]. No adverse events were reported in any of the included studies.

The full range of outcome assessments numbered forty-five. For pragmatic reasons outcomes were summarised as:

- Mental health (n=8),
- Problematic behavior (particularly anger, hostility, and impulsivity) (n=7)
- Self-regulation and emotional states (n=7)
- Quality of life and well-being (n=4)
- Substance use (n=3)
- Mindfulness (n=3)
- Personality, social, and relational attitudes (n=3).

An overview of the measures used to assess these outcomes is provided in Appendix 4.

In the main, follow up took place immediately at the end of the intervention only (9/13); one study carried out a one month follow up post-intervention [183]; one collected additional data at three and six months after release from prison, which was thus varied in terms of time since intervention completion [181]; and one included follow up one year post intervention [156].

Table 3.7 to Table 3.10 summarise the studies and their results in relation to the type of studies they were. In the following section the seven summarised outcomes are presented in relation to the type of studies in which they were used.

3.4.5.3 **Mental Health: Anxiety, depression and stress**

Improvements in mental wellbeing were recorded in seven of the eight studies reporting on this outcome, with significant reductions described in measures of anxiety [173] [175], stress [176, 184] and depression [155, 173], with data coming from three RCT [155, 176, 182], four CTs [173, 175, 181] and one pre-post study [184]. A small RCT (n= 33) noted significant improvements in sleep, wanting to throw things or hit people and nail or cuticle biting – described as a measure of mental health on the Symptoms Checklist (SCL) [182]. One small RCT (n= 24) reported significant within group improvements in levels of depression; no control group comparison was possible, as the Beck Depression Inventory (BDI) measure was only administered to those in the treatment group (Table 3.7) [190].

A large CT (n=305) reported a reduction in mental health symptoms measured using the Brief Symptom Inventory (BSI) (Table 3.8) [181].

Simpson et al. (2007) conducted a sub-group analysis (n=88) of data from Bowen et al (2006), using scores from the PTSD checklist-civilian version (PCL-C) to test for interactions between the experience of post-traumatic stress disorder (PTSD), course participation and treatment outcome [187]. In this case, PTSD symptoms did not render participants less likely to volunteer for VM, and there were no significant interactions between PTSD symptom severity and treatment outcome found. However, the study does not mention how participants were assigned to the groups (i.e. whether or not they could chose which intervention they could receive) (Table 3.8). A non-randomised control trial (n=29) with young offenders, reported that changes in measures of stress did not reach statistical significance [185].

3.4.5.4 **Problematic behaviour: anger, hostility, and Impulsivity**

Problematic behaviour was reported in six of the 13 studies that measured outcomes quantitatively; two RCTs [176, 183]; three CTs [156, 157, 173]; and one before and after study[178], with improvements reported in four of them [157, 173, 176, 178].

A large scale evaluation (n= 1, 953) of MBSR in Massachusetts correctional facilities in the USA [157] demonstrated large pre-post differences on measures of hostility compared to passive controls (See Table 3.8).

Himelstein (2011) reported significant reduction in levels of impulsiveness at post-intervention amongst adolescents (n=48) receiving mindfulness-based substance use (MBSU) [178]. In a CT study delivering VM Chandiramani et al. (1998; n=150) demonstrated a significant reduction in feelings of hostility [173]; whilst Perkins (1999; n= 143), in a RCT, found that both the treatment group receiving MBSR and active control group (attention training) demonstrated a significant decrease in situational anger and angry responding, compared to a waitlist control group [176].

Table 3.8 shows that, amongst the CT studies, Barnert et al. (2014; n=29) [185]and Perelman et al. (2012; n=127) [156] reported respectively no significant changes in impulsivity or anger. Additionally, a small RCT (n=31) examined the effects of a shortened version (six sessions) of MBRP with an incarcerated group of Taiwanese prisoners [183]. There were no significant reductions in self-reported anger and impulsivity.

3.4.5.5 **Self-regulation and emotional states**

Seven of the 13 quantitative studies measured self-regulation and emotional states. Five reported significant improvements in emotional stability and self-regulation ability. These data are based upon five CTs [156, 157, 175, 181, 185] and two pre- post-study designs [178, 184]. No RCTs measured this outcome.

Based on data from a small (n=42) CT study delivering SMP, Flinton (1997) reported significant improvements in internal locus of control and emotional intelligence [156]. Barnet et al. (2014), in a CT study (n=29), reported significant improvements on measures of self-regulation in young offenders who attended the MBA course [185]. In a large scale CT (n= 907), Samuelson et al. (2007), demonstrated significant improvements in mood disturbance on the profile of moods state (POMS) measure [157]. A longitudinal pre -post and one year

follow up study [156] demonstrated significant improvements in mood disturbance, this effect persisting at one-year follow-up, for those who received VM training (Table 3.8).

Two pre-post studies [184, 185], both delivering MBA, and including a small sample of young offenders reported contrasting results using the Healthy Self-Regulation Scale (HRS) measure; one[185] (n=32) demonstrated a significant increase in self-regulation ability and the other [184] (n=48) reporting a non-significant difference (Table 3.8).

3.4.5.6 **Quality of life and wellbeing**

Four of the 13 quantitative studies reported on this outcome. All four of these were CTs; demonstrating increased levels of optimism [181], self-esteem [157], hopefulness [173], and improved quality of life [173, 174], with a significant reduction in feelings of helplessness [173] (Table 3.8).

3.4.5.7 **Substance use**

A RCT, a CT, and a pre- post-study that measured substance use reported a mindfulness-based intervention to be an effective treatment for prisoners with a history of substance abuse, with reductions noted in illicit substance use [155, 178, 181].

In a small-scale RCT (n=24), Lee et al. (2010) reported that participants randomised to MBRP, had significantly higher negative expectancies of use [155]. However, measures on the Drug Avoidance Self-Efficacy scale (DASE) and a sub-scale of the Drug Use Disorder Identification Test (DUDIT-E); positive aspects of drug use (Ep) failed to produce significant results. Possible explanations for these findings could be brevity of the intervention (six sessions versus the standard eight) or the small sample size (n=24). Additionally, the DUDIT-E was translated into Mandarin Chinese in this study, possibly altering the validity of the scale (Table 3.7).

3.4.5.8 **Mindfulness**

Three studies included in this review reported on levels of mindfulness; two CTs and one pre-post- study. In two studies (a CT and a pre-post) [184, 185], both delivering MBA, mindfulness did not reach statistical significance. However, one of the CTs [156], (n= 127) reported that VM participants showed enhanced levels of mindfulness during immediate post-test when compared to controls, partially maintained at one-year follow-up.

3.4.5.9 **Personality, social and relational attitudes**

Two studies including a RCT [183] and a CT [173] reported on this outcome. In the RCT, Murphy et al.1995 (n=31) reported significant differences on a sub-measure of egocentrism (negative self-focus), between MBSR group and active control (Table 3.7) [183]. In the CT, Chandiramani et al. (2008) reported a significant increase in psychopathy, in participants attending VM training [173]. Findings also demonstrated a decrease in neurotic predisposition and criminal behaviour, with improvements noted in participant's attitude towards society; although, a statistically significant change was only reported at three month follow-up, and no change was reported in participant's attitude towards the law.

3.4.5.10 **Qualitative findings**

In the qualitative studies [177, 179, 180] (n=3), plus the data from the three mixed-methods studies [178, 184, 185], participants (n~170 – one study did not report the number of participants interviewed) reported feeling empowered by having met the 'challenge' involved in adhering to the mindfulness practices, appreciated being part of the group, developed more positive relationships with staff, peers and family, felt more in control, and were better able to cope with difficult feelings and impulses. They especially appreciated being treated with care, respect and humaneness [177]. In the main, it was reported that participants, family and staff were enthusiastic about, and supportive of these courses [179] (Table 3.10). These finding are based on participants collective experience of a variety of different interventions; VM, SMP, MBA and MBSU.

3.4.6 Evidence syntheses

The four tables below provide an overview of the study details and main findings, categorised by study design. Either ES or p-values have been used to report statistical findings. Not all studies had sufficient information for the ES to be calculated. Study controls are labelled *active* where a comparable intervention or treatment as usual (TAU) was used and *passive* when the control was assigned to a waitlist. No results favoured the control group.

Table 3.7 outlines the findings from the four RCTs, highlighting statistically significant results that favour the intervention. All four studies favoured the intervention, reporting medium to large effect sizes, ranging from 0.60 - 3.53 on outcomes of; mental health; anger, hostility, and impulsivity; and personality, social, and relational attitudes. However, Lee et al. (2010) only reported measures of mental health for the treatment group; therefore the ES (3.53) is only representative of this cohort. Furthermore, two studies [155, 183] reported no difference between treatment group and control on measures of anger, hostility, and outcome and on measures of substance use.

Table 3.7 Overview of RCT study details and main findings

Study	Setting and Population (Sample size)	Intervention	Outcomes measured (Measure used)	Showed statistically significant result that:		
Randomised control trials				**Favours control**	**No difference**	**Favours Intervention**
Perkins, (1998)±, USA	Female adult offenders (n=143; 49 MBSR, 48 passive control; 46 active control), housed at a Federal Correctional Institution.	MBSR	Mental health (CRIS - CRE)			✓ ES: 1.18
			Anger, hostility and impulsiveness (STAXI – SA and AE)			✓ SA (ES: 0.60) AE (ES: 0.66)
Murphy, (1995), USA	Male adult offenders (n=31; 15 MBSR and 16 active control) with a history of alcohol abuse and aggression. Maximum security jail.	MBSR	Anger, hostility and impulsiveness (STAXI)		✓	
			Personality, social and relational attitudes (SFSC -SN)§			✓ ES: 1.11
Lee et al (2010), Taiwan	Male adult offenders (n=24; 10 MBRP; 14 active control), with a history of drug abuse, housed at a drug treatment centre.	MBRP	Mental health (BDI-11)			✓ ES: 3.53*
			Substance use (DASE)		✓ ES:0.74	
Sumter et al (2009) USA	Female adult detainees (n= 33; 17 SMP, 16 active control), delivered at a residential facility; nonviolent probationers.	SMP	Mental health (SCL – SD, HP and NB)			✓ SD (P = 0.01) HP (P = 0.007) NB (P = 0.002)

Shading indicates that quality threshold has been meet
± Results shown for differences between treatment group and passive control § Effect size shown for one sub measures (See section on outcomes)
*Mental health only measured in treatment group ES – Effect size
Interventions used: **MBSR**; Mindfulness-based stress reduction **MBRP**; Mindfulness-based relapse prevention **SMP**; Structured meditation programme
Measures used: **CRIS**; Coping Resources Inventory for Stress (**CRE** -Coping Resources Effectiveness score); Curlette et al., 1990; **STAXI**; State-Trait Anger Expression Inventory (**SA**; State Anger – **AE;** Anger Expression); Speilberger, 1988; **SFSC**; 30 item Self Focus Sentence Completion (**SN**; Self-focused negative response); Exner, 1973; **BDI-11**; Beck Depression Inventory- II; Walter, Meresman, Kramer, & Evans, 2003; **DASE**; Drugs Avoidance Self-Efficacy Scale; Martin, Wilkinson, & Pouplos, 1995; **SCL**; (Modified) Symptoms checklist; Borysenko, 1987; **SD** (sleeping difficulties) **HP** (hitting people or throwing things) **NB** (nail biting).

Table 3.8 outlines the findings from five non-randomised control trials, also highlighting results that favour the intervention. As mentioned in Section 3.4.3.1 a publication [174] reported findings from several disparate studies using a range of study designs and including different populations. Hence, this publication has not been included in the table. In the main, all five studies favoured the intervention, reporting wide ranging effect sizes, ranging from 0.06 – 1.47 on outcomes of; mental health; anger, hostility, and impulsivity; self-regulation and emotional states; quality of life and wellbeing; substance use; mindfulness; and personality, social, and relational attitudes. However, in two studies between group differences were not reported for personality, social and relational attitudes and anger, hostility, and impulsiveness.

Table 3.8 Overview of non-randomised Control Trial study details and main findings

Study	Setting and Population (Sample size)	Intervention	Outcomes measured (Measures used)	Showed statistically significant result that:		
Non-randomised control trials				**Favours control**	**No difference**	**Favours intervention**
Bowen et al. (2006) USA	Male (79.2%) and female (20.8%) adult offenders (n=305; 63 VM, 242 active control) All participants had a substance use disorder. Minimum-security jail.	VM	Mental health (BSI)			✓ P<0.05*
			Quality of life and wellbeing (LOT)			✓ P<0.05*
			Substance use (DDQ; DDTQ; DRLC)			✓ P<0.05* (Marijuana –ES: 0.51, crack cocaine – ES: 0.3, alcohol –ES: 0.65)
Perelman et al. (2012) USA	Adult male offenders (n=127; 60 VM, 67 active control). Repeat and violent offenders. Maximum-security prison	VM	Anger, hostility and Impulsiveness (NAI-25)		ES: 0.21	
			Self-regulation and emotional states (POMS-SF; TMMS)			✓ ES: 0.09; ES: 0.06
			Mindfulness (CAMS-R)			✓ ES: 2.61
Chandiramani et al. (1998) India	Study 2: Adult males (n=150; 65 VM, 85 active control). Tihar jail, Delhi	VM	Mental health (HAS;BDI)±			✓ ES: 0.27; ES: 0.09
			Personality, social and relational attitudes (AS)#		ES: 0.19	
Flinton (1998) USA	Adolescent males (n=42; Group A, n=23; Group B, n= 19) residing in a camp for juvenile offenders.	SMP	Mental health (BSI)			✓ ES = 1.142
			Self-regulation and emotional states (PLSC)			✓ ES = 1.47

Study	Setting and Population (Sample size)	Intervention	Outcomes measured (Measures used)	Showed statistically significant result that:		
Non-randomised control trials				**Favours control**	**No difference**	**Favours intervention**
Samuelson et al. (2007), USA	Male and female adult offenders (n=1,953; 1,350 completers; 1,170 MBSR, 180 passive control), residing at the drugs units. Six minimum, medium and maximum security correctional facilities.	MBSR	Anger, hostility and Impulsiveness (CMHS)			✓ ES: 0.25
			Self-regulation and emotional states (PMS)			✓ ES: 0.32
			Quality of life and wellbeing (RSE)			✓ ES: 0.31

Shading indicates that quality threshold has been meet

* Results for 3 month follow up (after release from prison) § These results were partially maintained at 1 year follow-up ± These measures were only administered to participants with a psychiatric disorder (Study 1; n=21; Study 2; n=44) + significance shown at 3 and 6 month follow up # Significance for this measure was shown at 3-month follow up ($p<0.001$; ES 0.13)

Interventions used: **VM**; Vipassana Meditation **SMP**; Structured Meditation Programme **MBSR**; Mindfulness-based stress reduction

Measures used: **BSI**; The brief symptom inventory; Derogatis & Melisaratos, 1983; **WBSI**; The white bear suppression inventory; Wegner & Zanakos, 1994; **LOT**; Life orientation Test; Scheier & Carver, 1985; **DDQ**; Daily drinking Questionnaire; Collins, Parks, & Marlatt, 1985; **DDDQ**; Daily drug-taking questionnaire; Parks, 2001; **DRLC**; Drinking related locus of control scale; Donovan & O'Leary, 1978; **NAI-25**; Novaco anger inventory- short form; Mills, Kroner, & Forth, 1998; **POMS-SF**; Profile of mood states – short form; Shacham, 1983; **TMMS**; Trait meta-mood scale; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; **CAMS-R**; Cognitive and Affective Mindfulness Scale Revised; Feldman et al., 2007; **HAS**; Hamilton Anxiety Scale; Hamilton, 1959; **BDI**; Beck Depression Inventory- II; Walter, Meresman, Kramer, & Evans, 2003; **AS**; Anomie Scale; Srole, 1956; **PLSC**; Prison Locus of Control Scale; Pugh, 1994); **CMHS**; Cook and Medley Hostility Scale; Barefoot et al., 1989; **PMS**; Profile of Mood States; McNair, Lorr & Droppelman, 1992; **RSF**; Rosenberg Self-Esteem Scale; Rosenberg, 1979

Table 3.9 summarises findings from the three studies that used mixed-methods and highlights outcomes that showed statistical significance. One study included by Barnert et al. (2014) used a CT design; however the interventions and control conditions were almost indistinguishable i.e. a 10-week meditation course, with only the treatment group having an additional one-day retreat. Perhaps unsurprisingly, no differences in outcomes were found between groups; because of this, the authors collapsed all of the results into one dataset, limiting interpretation of their results, and the results presented in Table 3.9 represent the combined findings.

These studies reported mixed findings, with small to medium ES ranging from 0.43 - 0.75 on measures of mental health; anger, hostility and impulsivity; self-regulation and emotional states; and substance use. However, non-significance was reported by some studies on similar measures; mental health; anger, hostility and impulsivity; self-regulation and emotional states; and mindfulness.

Three of the studies included in this table, using mixed methods, also collected qualitative data via focus group or semi-structured interviews. In general participants reported changes suggestive of a positive effect from the intervention such as enhanced wellbeing, increased awareness and improved regulatory ability. Two studies noted that participants expressed an accepting attitude towards the intervention, with one study highlighting that some of the young men spoke about being resistant to the meditative practices

Table 3.9 Overview of mixed method study details and main findings

Study	Setting and Population (Sample Size)	Intervention	Outcomes measured (Measure used)	Outcomes that were statistically:		Major themes identified
Mixed Methods				**Significant**	**Not significant**	
Himelstein (2011) USA	Male adolescent offenders (n=48), housed at a juvenile correctional facility in California.	MBSU	Anger, hostility and impulsiveness (TCS)	✓ ES: 0.43		➢ Receptivity to the course ➢ Appreciation of the facilitators teaching style ➢ Learning about drugs
			Self-regulation and emotional states (HSR)		✓ ES: 0.25	
			Substance use (MTF)	✓ ES: 0.75		
Barnert et al. (2014), USA	Male adolescent offenders (n=29; 16 MBA, 13 active control)±, delivered at a juvenile correctional facility.	MBA	Mental health (PSS)		✓ ES: 0.32	➢ Enhanced well-being ➢ Expanded self-awareness ➢ Increased self-discipline ➢ Resistance to meditation ➢ Increased social cohesiveness ➢ Future meditation practice
			Anger, hostility and impulsiveness (TCS)		✓ ES: 0.20	
			Self-regulation and emotional states (PMS)	✓ ES: 0.44		
			Mindfulness (MAAS-A)		✓ ES: 0.20	
Himelstein et al. (2012), USA	Male adolescent offenders (n=32) housed at a juvenile correctional facility in California.	MBA	Mental health (PSS)	✓ ES: 0.42		➢ Increased wellbeing ➢ Improved self regulation ➢ Increased awareness ➢ Accepting attitudes towards the intervention
			Self-regulation and emotional states (HSR)	✓ ES: 0.60		
			Mindfulness (MAAS)		✓ ES: 0.22	

Shading indicates that quality threshold has been meet

± This study used a non-randomised control trial design but was included here as treatment and control groups were collapsed into one dataset.

I**nterventions used: MBSU**; Mindfulness-based substance use **MBA;** Mind Body Awareness

Measured used: TCS; Teen Conflict Survey; Bosworth & Espelage, 1995; **HSR**; Healthy Self-Regulation Scale; West, 2008; **MTF**; Monitoring the future; Johnston et al., 1991; **PSS**; Perceived Stress Scale; Cohen et al., 1983; **PMS**; Profile of Mood States; McNair, Lorr & Droppelman, 1992; **MAAS-A**; Mindfulness Attention Awareness Scale, Adolscent version; Brown, West, Loverich & Biegel, 2011; **MAAS**; Mindfulness Attention Awareness Scale; Brown & Ryan, 2003.

Table 3.10 presents main themes identified from the three studies that collected data via semi-structured interviews. These data are based solely on findings derived from purely qualitative studies. The general themes discussed in these studies revolve around two key areas (1) internal changes such as participants feeling more relaxed, better able to manage stress, and more optimistic about future prospects and (2) external changes such as improved relationships, valuing the kindness shown by the teacher and being part of a supportive environment, in which participants voiced feeling respected and valued.

Table 3.10 Overview of qualitative study details and main findings

Study	Setting and Population (Sample Size)	Intervention	Major themes identified
Observational; Semi-structured interviews			
Ronel et al. (2011) Israel	Male adults (n=22) with a background of substance abuse or dependency. Rehabilitation community; Hermon prison	VM	➢ 'Perceived Goodness' - Impact of volunteers on prisoners ➢ 'Positive Relationship with Prison Staff' - Different way of being related to and relating to ➢ 'Positive Social Atmosphere' - formation of a 'subgroup' who share similar values and morals ➢ 'Overcoming an Ordeal' - Inner challenge 'empowering feat'
Ranganathan et al. (2008) India	Gender not specified. (n=apx. 40). Maximum-security facility; Tihar Jail.	VM	➢ Establishing peace of mind ➢ Improved emotional, cognitive and behavioural regulation ➢ Increased ability to manage stress ➢ Increased self-belief ➢ Increased optimism towards future life.
Derezotes (2000) USA	Male adolescent sex offenders (n=14). Human Service Agency.	SMP	The following findings were reported: 1. Course was well liked by participants 2. Parents were supportive of the course (though relatively uninvolved) 3. Course facilitators were enthusiastic about and supportive of the course Participants noted a number of specific results that they particularly valued, these were: ➢ Feeling relaxed ➢ Improved concentration ➢ Improved impulse and emotional control ➢ Less disturbed by thoughts ➢ Being treated with care, respect and humanness

Shading indicates that quality threshold has been meet
Intervention used: VM; Vipassana Meditation SMP; Structured Meditation Programme

3.5 Discussion

A scoping review was carried out to identify the extent, range and nature of research on the use of mindfulness-based interventions in offending populations. The findings were expected to help inform the development of a mindfulness-based intervention to be used with incarcerated young men housed in HMYOI Polmont. This review identified a gap in the literature regarding definitive evidence delineating the most effective mindfulness-based approach for incarcerated young men.

Limited evidence was found to support the use of these interventions with incarcerated populations. Findings were derived from four RCTs, six CTs, three mixed-methods, and three qualitative studies. Most studies (n=11/16) originated from the USA, and none took place in the UK. Although pooled numbers from all included studies produced a sizable number of participants (n=3,335), covering both sexes, a range of ages (14-63), ethnicities, and offences, methodological quality was a limiting factor for almost all studies. A wide range of interventions was employed in different ways, making it difficult to know what type of intervention is optimal; it was not possible to determine optimal dose, or intensity of intervention. Quantitative outcome measures were diverse, mainly covering different aspects of mental health and wellbeing; however effect sizes in this domain, where discernible, tended to be medium to large.

Qualitative findings from the three included studies suggest that these types of intervention could have a role in correctional settings, where taking part was associated with participants feeling more optimistic, less stressed and impulsive, and improvements reported in relationships and behaviours, often based on what seems to have been a positive relationship forming with those delivering the courses. However, very little remains known about how these interventions fare against other commonly used psychological interventions, such as cognitive behavioural therapy, or how cost-effective they might be.

3.5.1 Strengths and limitations

This review used an established approach to conduct a scoping review on the use of mindfulness-based interventions within the offending populations. This approach allowed a

diversity of study types to be included. The addition of quality assessment enabled careful interpretation of results regarding their relevance to intervention development.

During the data retrieval stage of this review every effort was made to ensure that the process was rigorous, transparent and replicable. Whilst a comprehensive search strategy was used, the possibility of 'missing' relevant papers cannot be definitively ruled out. In particular, a shortage of time meant that no attempt was made to search the grey literature in any depth, where it is possible that other papers pertinent to this review may have been located. In addition, because there was no access to translation support, only English language studies were included, meaning that relevant and valuable empirical evidence written in other languages may have been omitted. Moher et al. (2003) have demonstrated that reviews restricted to English language publications do not miss many relevant studies. However, given the Oriental cultural background to meditation practices, it may be important for future studies to assess this important gap in the literature.

Additionally, the lack of a clear definition of mindfulness has given rise to a considerable amount of ambiguity, both in the clinical and research domains. This review deliberately tried to keep the studies included as close as possible to Kabat-Zinn's operational definition of mindfulness and original MBSR protocol, with the evaluated studies primarily focusing on VM and mindfulness. This led to my not including other interventions that draw upon the mindfulness approach, such as Acceptance and Commitment Therapy (ACT) and Dialectical Behavioural Therapy (DBT). These approaches, along with other similar interventions such as Yoga, Tai-chi, compassion and loving kindness meditation, may have a role in an offending setting.

3.5.2 How these findings relate to other reviews

A systematic review assessing the rehabilitative utility of Buddhist-derived interventions (BDIs) for incarcerated populations [150] also reported recurrent issues with methodological quality, as did one investigating yoga and meditation in other offending populations [191]. This current review found that only four RCTs have been conducted, only one being of strong methodological quality, and this was an unpublished PhD thesis, which was overlooked by the other reviews. Shonin et al. (2011) reported only two RCTs [150], whereas Auty et al. (2015), found four, but these were mixed with yoga interventions [191]. Lack of randomisation impacts the way in which with results can be interpreted i.e. limits the ability to demonstrate conclusively the efficacy of mindfulness as

a treatment intervention for the offending population, independent of other variables that may have influenced participation.

This review demonstrated discrepancies in intervention delivery, content and outcomes, which made it difficult to make meaningful comparisons between interventions across studies; a finding in keeping with a recent systematic review [150], where meta-analysis was deemed impossible, due to the high level of heterogeneity in interventions and outcome measures.

Shonin et al. (2013) did not report effects sizes in their systematic review; however, another recent meta-analysis [191] of yoga and meditation within offending populations demonstrated small effects for these interventions on psychological wellbeing (ES=0.46), and behavioural functioning (ES=0.30). The study also showed via a moderator analysis that longer duration, less intense interventions were associated with larger effects. By comparison, meta-analysis was not part of this current study, but examination of the effect sizes discernible, suggests a broad range across diverse interventions and outcomes.

3.6 Conclusions

Overall the results for this scoping review demonstrate that the potential usefulness and feasibility of mindfulness-based interventions within the offending population remains obscure. Due to the many methodological weaknesses identified in this review, definitive evidence that mindfulness-based approaches are beneficial to incarcerated young men is lacking. Further high quality studies are needed if feasibility and effectiveness of these interventions are to be established. However, the challenges of conducting rigorous research within a prison setting must also be acknowledged and accommodated for if understanding is to be further enhanced.

Chapter 4 Methodology and Methods

This chapter introduces the research methodology applied before going on to discuss the research methods used, data collection, management and analysis in relation to each research objective. The findings from the various components of the research are reported in Chapter 5 *Course Development*, Chapter 6 *Recruitment and Retention*, Chapter 7 *Outcome Evaluation*, and Chapter 8 *Experience of the course.*

4.1 Research methodology

The term 'research methodology' refers to the strategy or plan linking research methods to outcome [192]. It describes the underlying principles that govern choice and guides the practical application of methods, explaining why particular methods have been chosen for a study [193].

Research methods, on the other hand, are the tools, techniques or procedures adopted when conducting research, such as the use of questionnaires and interviews. McGregor and Murane (2010) characterise quantitative and qualitative approaches as *methods*, underpinned by different philosophical research paradigms (or methodologies), such as positivism, interpretivism, and pragmatism [192].

Quantitative Traditionally, quantitative research is usually seen as rooted in 'positivism'. From a 'postivist' perspective, knowledge is based on natural phenomena and the relationships between them, interpreted through reason and logic. The relationships between natural phenomena, laws of cause and effect, can be discerned via quantitative methods [194]. The objective of quantitative research is, therefore, to conduct systematic empirical investigations of observable phenomena. Quantitative methods are usually used to *'quantify'* data, in the belief that this will yield an unbiased result that can be generalised to the wider population, using statistical analysis.

Quantitative methods summarise data as statistics, numbers, frequencies and percentages, that can be used to measure phenomena or outcomes [195]; typical examples are experiments with an outcome in mind or surveys to assess prevalence of a particular phenomenon. To achieve these ends, quantitative approaches place emphasis on: *reliability* (overall consistency of a measure i.e. its ability to produce similar results in different circumstances, assuming nothing else has changed); and *validity* (the degree to which a

tool measures what it is supposed to measure). Reliability and validity are means of demonstrating and communicating the rigour of the measures used and the trustworthiness of the findings [196]. In quantitative research, ideally each step is conducted in an impartial and objective manner, without bias from the researchers own vested interest.

Qualitative Qualitative methods, on the other hand, generally aim to gain a deeper understanding of underlying processes, such as people's reasons, intentions and motivations for change [197]. For example, rather than testing if an intervention is 'effective' at increasing/decreasing scores on standarised outcome measures, a qualitative approach focuses on the participant's individual experience of the intervention. Qualitative research can thus be used to understand experience of change processes i.e. how an intervention works for an individual, or members of a group, and to help locate potential facilitators and barriers to change in studies aimed at altering behaviour.

A qualitative approach generally falls under the philosophical research paradigm of 'interpretivism' or 'constructivism' [198] where reality is viewed as socially constructed i.e. of our own making or co-produced; and emphasises inductive, exploratory and hypothesis-generating approaches [199]. This means that rather than starting with a theory about relationships between phenomena (as is the case with positivism) researchers inductively develop a theory or pattern of meaning [193] (although, in other cases, theory can be directly applied to data in a more 'deductive' approach to qualitative research). Central to the qualitative approach is the belief that meaning is derived from each individual's own subjective point of view (relativism), rebuffing the idea of an objective reality, and viewing the researcher as intrinsically linked with the research [192]. According to McGregor and Murane (2010) therefore, it is essential that the qualitative researcher is able to *'create an audit trail showing the thinking behind their interpretation of the participants' accounts of their world'* pg. 422 [192]. Qualitative researchers usually write up the findings, reflecting the words and experience of the participant, whilst explicitly accounting for their own reflections, insights and bias; these aspects are afforded much less, if any importance in the positivistic paradigm.

Researchers using qualitative methods have a wide variety of choice of methodologies available to them. Some examples of interview and observational approaches are phenomenology, discourse analysis, grounded theory, ethnography or descriptive thematic analysis [200]. If a researcher is interested in exploring an individual's life experience then phenomenological, biographical or narrative approaches might be preferable [201].

Discourse analysis is used when the focus is more concentrated on ‘talk’ or ‘text’ [202]. Grounded theory builds understanding from a ‘bottom-up’ approach, the data being used for the generation of new theory, with no prior assumptions about direction or outcome [203]. Ethnography aims to delineate understanding of cultural practices, often with the researcher being embedded in the site/source of data, such as living within a culture from which the data is being derived [193]. Thematic analysis has roots in both phenomenology and grounded theory; emphasising that participants perceptions, experience and views are paramount and should be clearly identifiable in themes, with analyses and reporting remaining as close as possible to the ‘raw’ data [198].

Mixed-methods A mixed-methods approach uses both quantitative and qualitative methods together in a pragmatic fashion. Pragmatism suggests that theory and research should be practical when dealing with individuals or groups of people; especially so when conducting research in the social science domain [204]. Rather than becoming too focused on the underlying philosophical debate, the focus in pragmatist research is concerned with the research objectives to be addressed. The value of any given research methodology is based on its empirical and practical efficacy [205]. According to this view, qualitative and quantitative research should not be perceived as contradictory, but instead as complementary strategies to be used as appropriate to address different aspects of the same research objectives [197]. Thus, the researcher may use pluralistic approaches to understand the issue or concern, such as whether an intervention is of benefit, or of use to its target audience [193].

The research presented in this thesis used mixed methods. This was largely because neither quantitative or qualitative methods alone would have been sufficient to address all of the research objectives [206]. For example, to both quantify the effects of the intervention but also understand better these effects by hearing directly from the young men about their own experiences of the intervention mixed methods were necessary. On a pragmatic level, and setting aside philosophical arguments, explorations of views and experiences are often best done using qualitative methods, and outcome measurements are usually best done using validated and reliable measures that allow quantification of change [193].

Pragmatism opens the door to multiple methods, different worldviews, different assumptions and the inclusion of different forms of data collection and analyses. Combining different methods can generate a broader, more in-depth scope of the overall data [193]. The MRC guidance (2008) advocates the use of multiple and mixed-methods

when developing and evaluating complex interventions (such as a bespoke mindfulness course) and was seen as an appropriate framework to guide the research because it could both guide the development and delivery of a bespoke mindfulness–based course for incarcerated young men, whilst simultaneously allowing assessment of the feasibility, acceptability, and potential effectiveness of the course [28].

The following sections of this chapter describe the specific methods of data collection, management and analysis used to address each of the four research objectives, which, as previously mentioned were: to develop a bespoke mindfulness-based course, to determine recruitment and retention to the course and research study, to investigate the feasibility of data collection and possible effectiveness assessed by outcome measures, and to explore the young mens' experience's of the course.

4.2 Research Methods

For practical reasons, and because this was a development and feasibility study, the research design was a pre-post test, using mixed methods, with both quantitative and qualitative data being collected.

4.2.1 Setting and recruitment

In 2012, the Scottish Justice Department identified mindfulness as a potential treatment strategy to improve outcomes such as impulsivity, mental health and resilience for incarcerated young men in Scotland. Discussions between the then Chief Medical Officer (CMO) for Scotland, who had a professional interest in addressing adverse childhood experiences via resilience training, and the Scottish Government Community Justice Division stimulated an interest in commissioning a mindfulness-based course for incarcerated young men during 2012 and 2013. The University of Glasgow was approached to implement this proposal and funding to pay for the development, delivery, and evaluation of a mindfulness course was provided.

HMYOI Polmont was identified, by the Scottish Government Community Justice Division, as an optimal site for the research to take place, as it specifically housed young males incarcerated for offending behaviour, and the Governor expressed enthusiasm and a keen interest in being part of this initiative. HMYOI Polmont is Scotland's national holding facility; the largest YOI in the UK, with a capacity to hold up to 760 young men [207].

Approximately 460 young men were housed in the facility at the time of this study, with 88.5% being between 18-21 years of age, 11.1% being under 18, and 0.4% being over 21.

Although the study aimed to be as inclusive as possible some exclusion criteria were felt to be essential by myself, both research supervisors, the forensic psychology staff at HMYOI Polmont, and the mindfulness teacher. Thus, recruitment to take part was based on the following eligibility criteria:

- ***Inclusion criteria***

    - Young men aged between 18 and 21 years were targeted for recruitment to the programme. The decision to focus on this group was based on (1) this group representing the greatest bulk of the population of young offenders and (2) the lead forensic psychologist in HMYOI Polmont suggesting that we focus on this age group.

- ***Exclusion criteria***

    - Young men with a known diagnosis of a severe and enduring mental health problems (such as active psychosis or suicidality) were excluded from taking part for safety reasons [208]

    - Young men who were on remand or had an identified release date that would coincide with course delivery were excluded from taking part to avoid course disruptions

    - Young men who were incarcerated for committing a sexual offence were excluded from participating, as the mindfulness teacher did not have appropriate clinical skills to work with this group

    - In addition, HMYOI Polmont forensic psychology staff reserved the right to exclude any individual where clinical judgement deemed the young man unsuitable for participation.

In the early stages of this study, it was felt important to draw upon input from a wide range of relevant stakeholders, likely to be involved in different phases of the project. It quickly became clear that this would involve various professional groups, including experienced academics, experienced mindfulness clinicians, the mindfulness teacher, staff from the forensic psychology team at HMYOI Polmont, including both senior staff, and more junior members of the team who were likely to be involved in screening and recruitment.

The research evaluation team consisted of two experienced academic supervisors (Professor Stewart Mercer and Professor Sally Wyke) both of whom have extensive expertise in intervention development, optimisation, and implementation, an experienced consultant psychiatrist (Dr Alistair Wilson) who routinely used mindfulness in his practice and myself, the lead investigator. Our collective responsibility was to ensure research integrity i.e. that the protocol was adhered to, with any changes, where possible, being pre-meditated or in response to stakeholder input, agreed with the mindfulness teacher and staff at HMYOI Polmont, and documented as part of the ongoing evaluation.

The project management team (PMT) was comprised of Professor Stewart Mercer, Professor Sally Wyke, and myself; along with Dr Charlie Kelly, who had extensive experience of working with incarcerated young men, and a recruitment manager in HMYOI Polmont (CDT; DR; JD; SG). In total, seven project management meetings were held between September 2013 and October 2015. Five of these were held during the early stages of development, prior to the courses commencing (September to December 2013).

Due to persistent problems with recruitment, a sceptical attitude from a senior Forensic Psychology Staff, and a strained relationship between the mindfulness-teacher and prison staff, one of the additional two meetings became a ‘crisis’ meeting, requiring the involvement of both: the Governor-in-charge for HMYOI, Mrs Sue Brooke, and a representative from the Scottish Government Mr Kevin Fulton. This meeting, which took place in November 2014, allowed a variety of frank views about the project to be exchanged, and provided insight into competing priorities among the different stakeholders.

Recruitment for the current study was conducted in collaboration with the forensic psychology department at HMYOI Polmont. The lead forensic psychologist identified ‘recruitment managers’; those assigned to this role were all trainee forensic psychologists, with some experience in diagnosing and treating mental health problems, and basic

proficiency in risk assessment. Selecting onsite members of staff to screen participants was seen as the most viable option since restricted onsite access meant that it was not possible for me to meet with each of the young men individually.

Over the duration of the study, four successive recruitment managers were appointed. Reasons for the repeated changes to the recruitment manager(s) related to job relocation, assignation to other roles deemed of higher priority by senior HMYOI Polmont forensic psychology staff, and long-term sick leave.

My role in this process was to brief the recruitment manager(s) about the study, providing an overview of the intentions, aim and objectives, scientific rationale and justification for the study i.e. why mindfulness practices might be of benefit to these young men, whilst explicitly highlighting the inclusion/exclusion criteria. A clinician information sheet was provided to help guide the screening process (see appendix 5a) and a staff information sheet given to provide written details about the study and advice regarding how best to support those participants attending the course (see appendix 5b). To support this process, an open channel of communication was established via email, allowing for regular contact with the forensic psychology team and to keep up to-date with the recruitment and screening of potential participants. This process will be described more fully in Chapter 5 *Recruitment and Retention,* specifically outlining the different recruitment strategies used throughout the running of the mindfulness courses.

The initial protocol estimated a total of 100 young men being recruited; with a maximum of ten participants allocated to each course. This figure was agreed by consensus among the research evaluation team, the forensic psychology team at HMYOI Polmont, and the Scottish Government, when an application for funding was made. As the study was a feasibility study, a power calculation was not carried out. The number was estimated as being realistic and achievable, given the potential pool of participants being drawn from a total of 407 young men housed in HMYOI Polmont, in August 2013, who were likely to meet eligibility criteria. It was not clear before commencing how many young men the forensic psychology team would need to approach in order to fill each course, but a record was kept throughout the study as a means of assessing this retrospectively.

During the planning stage, it was anticipated that two preliminary courses would be delivered. It seemed plausible that these two courses would be sufficient to optimise and ‘finalise’ the intervention design for subsequent courses, with the remaining eight courses

then being ‘tested’ in a before and after evaluation to explore possible benefit. However, this proved to be unrealistic, both in terms of the numbers recruited, and the complexity involved in tailoring the course. Thus piloting and optimisation was an on-going throughout the whole of this project.

It was also initially estimated that at least six weeks would be required between collecting and analysing the data, sharing emergent findings with the research evaluation team and mindfulness teacher, and then integrating any agreed modifications into the subsequent course. However, in some cases, due to low levels of recruitment into the study, gaps between courses were longer than had been anticipated. Briefly, these unanticipated delays resulted in a pressure of time developing, in that later courses ended up having to run concurrently, rather than sequentially, limiting time available to deliberate over optimisation between latter courses. In addition, due to unforeseen circumstances, there was a six week gap in course five, where onsite renovations at HMYOI Polmont, the mindfulness teacher taking impromptu annual leave, and other organisational problems disrupted the course. Appendix 6 provides an overview of the programme delivery timeline, including disruptions to delivery experienced.

In the current study, the following issues served either to hinder the delivery of the mindfulness courses or affect uptake and successful engagement with the courses:

1. Lack of continuity of staffing within the Institute or staff absence (mainly due sick leave, competing duties within the Institute or being on a training course).
2. Ineffective booking system in place, resulting in young men not turning up to pre-booked activities.
3. Confusion regarding who was attending the course.
4. Communication issues between forensic psychology staff and hall staff, for example when enrolled participants were placed on alternative programmes information was not made available to myself, a member of the research evaluation team, or the mindfulness teacher in a timely fashion. This limited the opportunities to backfill, resulting in under utilisation of the course. On one accession two young men were allocated on the mindfulness course without prior screening and without the knowledge or approval of the research evaluation team. Prison staff justified this by saying that they wanted to make the most of having the course available i.e. if a course was under recruited they wanted simply to fill the remaining slots.

5. Lack of clarity regarding how supported the young men were by personnel or hall officers to commence or sustain attendance on the training courses.
6. Issues with young men electing not to participate or refusing to attend (even after signing up or booking a place)
7. Young men being anxious about travelling to the activity center, usually due to a fear of meeting an adversary. In addition, social interaction opportunities were restricted (by staff) due to a fear or expectation that too many young men together would result in disorder or violence.

Due to these unanticipated challenges only seven courses were eventually delivered.

In order to inform potential participants about the research aspects of this study I delivered 'information sessions' to small groups of young men (5-10) one week before each mindfulness course commenced. These sessions provided a forum to speak about the study, discuss its purpose, specify data collection procedures, talk to the young men about how their data would be used, and to emphasise the voluntary nature of taking part. Participant information sheets were also provided at this time (See appendix 5c). In all cases it was made clear that this was a feasibility study i.e. participants were informed that the mindfulness-based course was new to the YOI and that we were keen to understand how it was being perceived from their perspective. At the end of these sessions, time was allowed to answer any questions from the young men had about the study and to gauge informally the level of interest. Those expressing an interest in taking part were invited to provide informed consent to taking part, and to complete the baseline questionnaire measures. Appendix 7 provides a copy of the consent form and Appendix 8 a copy of the research pack. All participants were informed that they could withdraw from the intervention and/or the study at any time, and assured that this would not affect their treatment at the YOI.

4.2.2 Programmes routinely offered at HMYOI Polmont

Within HMYOI Polmont there are a number of different sectors involved in the rehabilitation and overall care of the young men incarcerated in the Institute. In the HM Inspectorate of Prisons in Scotland (HMIPS) policy document (2016) it is acknowledged that HMYOI Polmont emphasise the importance of recognising and accrediting achievement when young men successfully engage with programmes offered to them[209]. Available programmes include:

- **Education Services:** Since 2012, HMYOI Polmont has sought to redefine the institution as a learning environment [209]. The education services, provided mainly by Fife College, offers training in key core skills such as literacy and numeracy, as well as the potential to engage in more creative and innovate training courses such as the visual and preforming arts (to include developing skills in music, drama, radio broadcasting and creative writing).
- **Vocational Training:** Vocational courses are geared more towards the workplace, helping the young men develop skills and training so that they may gain legitimate employment once released back into the community. As such, they focus mainly on the construction industries, such as bricklaying, joinery, painting and decorating, and plumbing. There are also introductory courses offered in engineering and forklift truck driving. In addition to these more structured training pathways, onsite 'employment' opportunities also exist for the young men, including cleaning jobs, laundry and catering positions, or horticulture and landscaping opportunities.

Aside from educational and vocational development training, young men also have access to a range of other services, aimed at enhancing physical, emotional, psychological, and social development. These include, but are not limited to, the health services, psychological services, social work services, youth work initiatives, and sports and recreation facilities. There are also a number of positive initiatives aimed at violence reduction and heightening awareness and knowledge of drugs/alcohol, their effects, and associated harm i.e. legal and long-term health issues of drug/alcohol misuse (See Appendix 9 for a more detailed description of these programmes).

The young men are routinely encouraged by HMYOI Polmont staff to use their time in prison constructively. Nevertheless, attendance on programmes or involvement with onsite services is not compulsory and there is no timetable to which they must adhere. Participation on programmes is thus voluntary although can be incentivised. The mindfulness course described in this current study thus sat within a wider context where young men had an extensive range of activities in which they could choose to participate whilst incarcerated within the institute. This meant that, inevitably, there would be occasions where scheduling of the mindfulness course would conflict with other concurrent courses that were available.

However, the HMIPS policy report, described participation levels on most programmes within the Institute as being 'disappointingly low', with staff expressing doubt as to the

young mens' desire to change, with just over a third of the population engaging constructively with daily activities, highlighting the challenges of delivering interventions in this context [209]

During the time that this study was been carried out, relevant parties within HMYOI Polmont were already trying to identify and implement solutions to rectify this problem. However, it was noted in the HIMPS (2016) report that staff were also resistant to the changes being implemented, with some voicing concern that *"too much change was happening with insufficient resources and in too short a timescale"* pg. 30 [209]. A common concern was that the regime was embracing a care ethic at the cost of security and good order.

In addition to the generic problems faced by all programmes, and with the timing of this study coinciding with the initiation of a progressive and ambitious vision for young people in custody, the mindfulness-based programme faced further challenges. These were:

1. Young men received a salary for attending vocational training or educational services. The mindfulness training did not offer such remuneration.
2. Successful completion on any of the training programmes or work placements can lead to certification or a recognised qualification (appropriate to the level of competency reached). For example, most vocational courses include National Progression Awards, Introduction to Workplace skills or a Scottish Vocational Qualification (SVQ), the latter being a qualification based upon national standards, providing evidence of work readiness, competency, and professionalism. Programme completion success rates are highest among those working towards recognised qualifications [209]. The mindfulness training did not have such an incentive.
3. Young men's learning preferences. An analysis of data from the Young Offenders Survey conducted at HMYOI Polmont (n=267), by the Scottish Prison Service (SPS) in 2013, reported that vocational training was the most frequently attended programme at HMYOI Polmont. Furthermore, vocational training, focusing on developing the young men's technical skill base through a mix of practical and educational activities, was deemed more acceptable to most of the young men, especially those who did not enjoy long periods of theoretical, conceptual, classroom based work [209].

4. The mindfulness programme was being run by an agency external to the institution, was connected with the mental health services, and was not an established part of the routine.
5. Staff attitudes towards the mindfulness courses (either positive or negative) could influence recruitment and retention efforts.
6. A number of programmes are delivered in the young men's halls of residence, to increase provision, improve reach, make them less formal, attenuate the young men's fear of attending groups outside of their familiar social setting, and enhance engagement from those who would otherwise not sign up. Restricted access to certain areas within the YOI limited the ways in which the mindfulness course could be delivered i.e. the mindfulness teacher was provided with a designated space in the activity centre only. However, although delivering the mindfulness course in the halls of residence might have improved access to the course, the venue itself may not have been conductive to teaching, in that the residential halls tends to be noisy and busy.
7. Lack of clarity if – how - where the mindfulness-based intervention fitted within the new initiative being introduced within HMYOI Polmont.

4.2.3 Quantitative methods

Two of the four research objectives of this thesis depended upon quantitative data:

- To determine recruitment and retention to the course and research study
- To investigate the feasibility of data collection and potential effectiveness, assessed by outcome measures (impulsivity, mental wellbeing, inner resilience, emotional regulation and mindfulness).

4.2.4 Quantitative Data collection

Recruitment and retention Throughout the study I kept track of the progress of each course by e-mail communication and face-to-face meetings with the recruitment manager and mindfulness teacher. Recruitment records were kept to ascertain numbers recruited into the course i.e. number of individuals approached, number refusing to take part, number expressing an interest and number consenting to take part. These data were mostly collected through liaison with the forensic psychology team. To gather data on session attendance and retention in the course, records were kept on number of young men

attending weekly sessions. These data were collected through liaison with the mindfulness teacher, who kept a weekly attendance record. I also collected field notes in order to identify which recruitment strategies were working best, and why.

Recruitment into the evaluation reflects the number of young men who consented to be part of the evaluation, by a formal process of informed consent. Retention in the evaluation refers to the number and percentage of individuals completing outcome assessments at baseline, post-course, and at three-month follow-up, and may be different from course retention rate, in that individuals may not have completed the course, but continued to complete outcome measures or visa versa. To gather data on recruitment and retention into the evaluation, records were kept of the numbers completing questionnaire outcome measures throughout the study. Both the recruitment manager(s) and I bore the responsibility for collecting consent, baseline and subsequent questionnaire outcome measures. Real and potential barriers to recruitment and retention were explored via this process. Incorporation of subsequent interview data and exploration of reasons for participation, or not, allowed the development of a more detailed understanding of how such processes might be improved for future courses in the evaluation, and potentially beyond. Qualitative methods are reported more fully in section 4.2.5 below.

Outcome evaluation Enrolled participants were asked to complete self-report questionnaires at three time points during the study; pre-intervention (baseline), immediately post-intervention, and three-months following post-intervention completion. Questionnaire measures were targeted at key outcomes of interest, including impulsivity, mental wellbeing, inner resilience, mindfulness and emotional regulation.

The British Psychological Society recommends that measures should be administered by individuals trained to do so [210], and I had completed such training prior to the research study taking place. All of the recruitment managers (trainee forensic psychologists) had training and experience in delivering psychometric measures to this population.

I led data collection sessions in groups in the activity centre of the YOI. This approach was recommended by forensic psychology staff, who stressed that collecting data individually would create difficulties for the young men and the YOI staff, in terms of altering the normal routine for the young men, necessitating the provision of extra staff to support the transfer and supervision of each individual, or to support the researcher accessing restricted areas of the institute.

The forensic psychology staff briefed the young men in advance about the purpose, content, duration and times of the data collection sessions, and various provisions were put in place to make the room conducive to data collection, such as ensuring that adequate desk space and seating was available, and providing soft drinks for the young men during the session. Every effort was made to minimise distractions and disruptions during data collection, for example, by providing immediate assistance to any of the young men requesting help or experiencing difficulties in completing the questionnaire and trying to keep the whole process informal and relaxed.

The sessions were held in a windowed room, delivered by the researcher and a recruitment manager to provide support and assistance should any questions arise, for instance with literacy or comprehension issues. On numerous occasions (9/21), where the recruitment manager was unavoidably occupied in different duties, I took on this role single-handed, with prison guards, as usual, stationed outside to ensure safety. On those occasions where participants were not brought up to the activity centre the recruitment manager (6/21) met with the individuals on a one-to-one basis in their respective halls of residence. This usually took place later that day, or the following day. On one occasion (Course 2, at 3-month follow up) none of the young men were brought to the activity centre due to an administration error; thus, the recruitment manager escorted me to the Halls to meet with the young men (n=2) individually; the recruitment manager sat in on one of these sessions. Table 4.1 documents the different ways in which outcome measures were collected.

Table 4.1 Data collection process

Course	Baseline			Immediately post-Intervention			3-Month following post-intervention		
	Collected by	**Format**	**n**	**Collected by**	**Format**	**n**	**Collected by**	**Format**	**n**
1	Researcher	Group	8	Researcher and RM	Group	5	N/A	N/A	N/A
2	Researcher	Group	8	Researcher and RM RM	Group Individual	3 2	Researcher Researcher and RM	Individual Individual	2 1
3	Researcher	Group	9	Researcher and RM	Group	7	Researcher	Group	3
4	Researcher and RM	Group	6	Researcher	Group	5	Researcher	Group	4
5	Researcher	Group	5	RM	Individual	5	Researcher	Group	4
6	Researcher and RM	Group	7	RM	Individual	3	N/A	N/A	N/A
7	Researcher and RM	Group Individual	3 2	RM	Individual	5	N/A	N/A	N/A

RM = Recruitment Manager. N/A = Not Applicable. n = numbers

Outcome evaluation measures A number of outcome evaluation measures were considered. The choice of measure balanced the need for valid and reliable measures with their acceptability to this population. In addition, it was important to make sure that what was being measured was of relevance to the young men and the issues that they face. Therefore, outcome choice was guided by information derived from the scoping review (Chapter 3), advice from the senior forensic psychology staff at HMYOI Polmont, and through numerous discussions with my supervisors. It was agreed that the focus of the intervention was not clinical in that the population targeted was the general one in Polmont rather than those with known mental health problems (such as depression or PTSD). Throughout the discussion with the funder, and the senior management at Polmont, it was clear that a main hope for mindfulness was to reduce impulsivity (and its associated behaviours such as aggressive behaviours) rather than to improve specific mental health problems.

The following measures were therefore selected: the Teen Conflict Survey (TCS); the Barratt Impulsivity Scale (BIS-11); the Sense of Coherence scale (SOC-13); the General Health Questionnaire (GHQ-12); the Child and Adolescent Mindfulness Measure (CAAM); the Mindful Attention Awareness Scale (MAAS); and the Difficulties in Emotion Regulation Scale (DERS) (Table 4.2).

Chapter 7 *Outcome Evaluation* provides further information regarding the measures chosen, with justification for their inclusion in this study. Authors were contacted in two cases where measures required permission before being used (SOC-13 and CAMM). Letters confirming permission are included in Appendix 10a and 10b.

As this was a feasibility study no outcome measure was ordered as primary.

Table 4.2 Pre- post - study outcome measures

Outcome	Measure
Impulsivity	The Teen Conflict Survey [211] (TCS; Bosworth & Espelage, 1995)
	The Barrattt Impulsivity Scale [212] (BIS-11; Patton, Stanford, & Barratt, 1995)
Mental Wellbeing	The General Health Questionnaire [213] (GHQ-12; Goldberg & William, 1988)
Inner Resilience	Sense of Coherence [214] (SOC-13; Antonovsky, 1987)
Mindfulness	Mindfulness Attention Awareness Scale [215] (MAAS; Brown & Ryan, 2003)
	Child and Adolescent Mindfulness Measure [216] (CAMM; Greco et al. 2011)
Emotion Regulation	Difficulties in Emotion Regulation Scale [217] (DERS; Gratz & Romer, 2004)

4.2.5 Quantitative data analysis

Demographic and descriptive data Data were collected on a range of demographic and descriptive details including age, ethnicity, education achievement, employment status prior to incarceration, sentence length, time served before commencing the course, number of times incarcerated, prior attendance on other courses offered at HMYOI Polmont and previous experience of mindfulness, meditation and/or yoga. These data were summarised using mean and standard deviation for continuous variables and counts and percentages for categorical variables.

Demographic and descriptive details were also collected for the mindfulness teacher, but not for HMYOI Polmont staff; confidentiality and safety concerns prohibited this.

Recruitment and Retention To assess the feasibility, acceptability and accessibility of the course to incarcerated young men, key outcomes included recruitment and retention. Data from study recruitment records and weekly attendance sheets were analysed via SPSS v22, using descriptive statistics to report frequencies, percentages, means and standard deviations (SD).

Outcome Evaluation Analysis was conducted on all available data. Missing values were inspected for using SPSS v22. Results are reported in percentages (%). Incarcerated young men are known to have literacy difficulties. Therefore, all self-report questionnaires were subject to a measure of their readability level and age suitability, using the Flesch-Kincaid readability test.

In the first instance assessment of the normality assumption was undertaken [218]. This was completed to determine the correct statistical tests to use i.e. parametric or non-parametric.

Normality was explored both visually and through statistical normality tests [218], using three approaches. First, histograms and normal distribution curves were generated using SPSS v22. This approach has been criticised as superficial, questionable regarding its robustness and not necessarily guaranteeing that the distribution is normal [196]. The second step, therefore, involved generating P-P plots (probability-probability plot). P-P plots chart the cumulative probability of a variable against the cumulative probability of a particular distribution i.e. normal distribution. If the scores are normally distributed the

result is a straight diagonal line [196]. Again this process allowed a visual inspection of the data. Thirdly, in order to supplement these graphical assessments, a statistical test for normality was applied: Shapiro-Wilk test. This is the most commonly used test and identified by some researchers as the best choice for testing the normality of data [218], being especially relevant for sample sizes less than 50 [219]. This test was conducted using SPSS Explore procedure [196]. The Shapiro-Wilk test works by comparing the scores in the sample to a normally distributed set of scores with the same mean and standard deviation (SD) [218]. If the test is not significant, i.e. greater than 0.05, then the data are normal.

Cronbach's alpha was used as a measure to assess the internal reliability of the self-report questionnaires used in this study. The reliability of any given measurement refers to the extent to which it is a consistent measure of a concept, and Cronbach's alpha is one way of measuring the strength of that consistency.

The strength of correlation between the outcome measures used in the evaluation of the mindfulness intervention was assessed as many of them measured similar or closely related constructs. Predictions of expected relationships are presented in Chapter 7 *Evaluation Outcome*. This process was used to detect whether there was a high degree of 'redundancy', which could possibly inform future outcome measure selection, as well as reducing the number of measures included in future research packs. Exploratory univariate correlational analysis was conducted using SPSS v22. As the data were normally distributed Pearson correlation coefficients (r) were calculated [220]. Scores can range from -1 to +1 [220]. The signs indicate whether the relationship is negative (i.e. as one variable increases the other decreases), or positive (i.e. as one variable increases so does the other). The size of the absolute value provides an indication of the strength of the relationship. A correlation of 1 or -1 indicates a 'perfect' correlation, a correlation of 0 indicates no apparent relationship between the two variables. The strength of the correlation was determined using Cohen's classification of: 'small' (.1 to .29), 'medium' (.3 to .49) and 'large' (.5 to 1.0) [221]. Results are presented as 'r' values and 'p' values.

Statistically significant differences between baseline and follow-up measures were investigated using paired t-tests. This approach was agreed upon through discussions with both of my supervisors and with a senior statistician. A paired t-test (parametric data) is an appropriate test in a 'before and after' study such as this as it compares the baseline and follow-up scores of the same individuals. In applying such statistical tests of change, a 'p'

value of 0.05 or less is generally accepted as statistically significant. While a 'p' value can inform us whether a significant difference exists, it does not reveal the size of the difference. Therefore, in reporting and interpreting the results, both statistical significance ('p' value) and substantive significance (effect size - ES) were included. Effect sizes for outcome measures were calculated using Cohen's 'd' statistics, by dividing the mean change score for participants by the baseline SD for each outcome measure used. Effect size is the standardised measure of the magnitude, or size of an observed effect between two variables. Effect size for the intervention followed the Cohen classification for t tests: 'small' (≥0.2), 'medium' (≥0.5) and 'large' (≥0.8)[221]. Note Cohen (1992) gives different classifications for the strength of correlation (as outlined above).

Results are reported as means, standard deviations (SD), mean difference scores, significance ('p') and treatment effect sizes (ES), with 95% confidence intervals (95%CI).

Cluster effects were examined to determine if there was any evidence of significant variation between groups, in any measured variable, which would possibly influence outcomes. To test for clustering i.e. *'the organisation of a collections of patterns into clusters based on similarity'* p. 265 [222], one-way ANOVA was used. Similarity among participants within pre-existing groups or clusters reduces the variability of responses in a clustered sample. Analysis of variance (ANOVA) compares the variance (variability in scores) between the different groups (considered to be due to the independent variable) with the variability within each of the groups (considered to be due to chance) [196]. If significance is less than or equal to 0.05 there is a significant difference between the groups. The one-way ANOVA investigated whether any differences existed in (1) baseline demographics (age, educational attainment, sentence duration and length of time in Polmont) amongst the seven groups, (2) baseline self-report scores amongst the seven different groups, and (3) change in self-report scores amongst all seven groups. Results are presented in this thesis as 'p' values.

Finally, multiple regression analysis was used to determine whether any baseline variables predicted better outcomes, as this would potentially be useful in clarifying the selection criteria for future groups. Multiple regression can be used to consider the relationship between a continuous dependent variable and a number of independent variables or predictors. It is based on correlations, but conducts a more in-depth exploration of the interrelationship between the included variables. Pallant (2007) advocates a sound

theoretical or conceptual rationale when choosing independent predictors to include in the analysis [220].

Therefore, in developing regression models and deciding what variables (independent predictors) to put into the model, two approaches were employed; first univariate correlational analysis (as described above) was used to help identify independent variables. Following on from the correlational analysis, and through discussion with my supervisors, it was hypothesised that certain variables might be expected to affect outcomes; age (older participants might be more mature and thus better able to engage in the intervention); educational attainment (higher education attainment may mean it is easier for the young men to grasp the concept of mindfulness); previous experience of mindfulness (familiarity with the practices might improve engagement); percentage of course completed (those who attended more sessions would be expected to have better outcome); baseline scores (other studies have shown that worse severity of baseline symptoms predicts better outcome) [102, 223] and GHQ-12 scores (those identified as having higher psychological distress at baseline might show more improvement across a range of measures). The latter hypothesis was based on evidence from a recent meta-analysis (n=1,914) examining the utility of mindfulness for young people between the ages of 6-21, reporting that youth psychiatric populations show higher effects (ES:0.50) compared with non-clinical populations (ES:0.20) following mindfulness training [27].

Linear regression models were then run for each of the seven outcome measures using SPSS v22. This test was conducted using SPSS 'enter' methods, looking for collinearity with tolerance and variance inflation factor (VIF). Pallant (2009) states that a small tolerance (less than 0.10) and high VIF indicates that the multiple correlation with other variables is high, suggesting collinearity problems [220]. Results of the regression models are presented as the standard coefficient Beta value and 'p' values.

4.2.6 Qualitative methods

Three of the four research objectives of this thesis were reliant on qualitative data:

- To develop a mindfulness-based course
- To determine recruitment and retention to the course and research study
- To explore the young men's experience of the course

Qualitative data were collected through interviews with three main groups: (1) the young men who participated in the course, (2) HMYOI Polmont staff and (3) the mindfulness teacher. Session notes submitted by the mindfulness teacher were also included.

4.2.7 Qualitative data collection – young men

Semi-structured interviews were carried out with 20 of the 48 young men who took part in the study, and included 'completers' (n=16) and 'non-completers' (n=4). Interview data was gathered at different intervals over the duration of 19 months, until no new information was being elicited from the interviews. The majority of the interviews (n=13/20) were conducted in the Activity Centre under 'distant surveillance' of Prison Officers; these officers were stationed outside of the windowed room. Four interviews were conducted in the halls of residence, and three in an office space adjoining a workstation.

Recorded one-to-one interviews took place following completion of the final session of each course for the first five courses that were delivered. Interviews were on average 30 minutes in length (ranging from 16 minutes to 50 minutes); but no strict time limit was applied. Some interviews were necessarily shorter in duration, especially among those who had dropped out early on in the course (n=4).

The interview guides for 'completers' (Figure 4.1) and non-completers (Figure 4.2) are provided below. Each interview followed a similar sequence, beginning by exploring the young mens' 'journey' from when they first became aware of the course; what motivated them to attend; how they found the course; what maintained their interest or not; whether they were able to do the home practices or not; perceived effects; future use of the practices, if any; and any thoughts they might have on improving the course. The interview guide for those who dropped out of the course was shorter, containing more open-ended questions and 'probes' about their original decision to sign-up to the course, reason(s) for leaving, what they found beneficial, or not, and any suggestions they thought would improve the course and/or make it more appealing to them.

In addition, some interview questions were designed to derive information that could inform course development (findings are reported in Chapter 5 *Course Development*), in particular covering what the young men liked, or didn't, what worked for them, or didn't. To inform recruitment and retention, (findings are reported in Chapter 6 *Recruitment and*

Retention) young men who completed the course were asked specifically about aspects of the course that encouraged continuation, whilst those who did not were asked their reasons for dropping out. To explore the views of the young men regarding the usefulness of the mindfulness course to their overall health and wellbeing (findings are reported in Chapter 8 *Experience of the course*), the wide range of questions that were covered enabled different facets of the young men's experience to be assessed.

Figure 4.1 Interview guide for young men attending the course

Overall experience of the course

Can you tell me a little bit about your experience of the course?

- What made you decide to come to the course?
- What did you think it was going to be like?
- Was it different from what you expected? In what way?

The course itself

How did you find the:

- Length of the course i.e. 10 weeks?
- Duration of each session i.e. 2 hours?
- Mindful practices that you were taught?
- Content i.e. the topic of each session?

Was there anything that you did not like? Can you tell me more about that?

Was there anything that you found helpful? Can you tell me more about that?

What was your impression of the facilitator?

Practice (outside of the group)

How did you find the homework 'practice' outside of the group?

- What did you practice and how often?

Did you have any experiences of being 'mindful' outside of the group?

- Can you tell me about this?
- Are there any techniques that you continue to use?

Has it worked?

Can you tell me if the course has helped you become better able to deal with stressful situations? If so, how?

Have you noticed any changes in how you respond to situations? If so, how? Can you give me an example?

Have you noticed any changes in how you respond to others? If so, how? Can you give me an example?

Do you feel better able to manage difficult situations when they arise?

Some people find that doing the course can change the kind of person they are – have you noticed this at all? For example does it make you think about yourself differently or think about life differently?

Did the course help you to address any other issues?

Was there anything that was a 'turning' point for you?

Suggestions for Improvements

Would you recommend it to a friend? How would you describe the course to a friend?

Do you have any recommendations or suggestions for how we could improve it?

Additional Information

Can you tell me how you think you might be able to use what you have learned from this programme once you leave here?
How do you think this training will impact your life, if at all?

Figure 4.2 Interview guide for those who did not complete the course

1. Can you tell me what made you decide to volunteer for the course?
2. How many sessions did you attend – if any?
3. Was there anything that you found helpful?
    a. Can you tell me more about that?
4. Was there anything you found that you did not like?
    a. Can you tell me more about that?
5. What was it that led to you deciding not to complete the course?
    a. Can you tell me more about that?
6. How did you find the instructor?
7. Is there anything that would have made it easier for you to stay on the course?
8. Do you have any suggestions for improvements?

4.2.8 Qualitative data collection – Polmont Staff and mindfulness teacher

As this was a feasibility study, the main focus was the young men's experience of the course but this was supplemented by interviews with other key stakeholders.

Purposive and convenience sampling was used when selecting HMYOI Polmont personnel to interview. The three groups identified were (1) the mindfulness teacher, (2) forensic psychologists and (3) the prison officers; specifically chosen as they had direct contact with the young men (purposive), able to comment on any behavioural changes noticed in the young men and able to offer insight into how the course was received by staff within the YOI (purposive). The forensic psychologist and mindfulness teacher were also directly involved in the delivery of the courses so were aware of recruitment and retention issues. However, due to practical and logistical considerations, determining which prison officers could be interviewed was driven largely by convenience; for example, identifying members of staff who were willing and available to be interviewed.

Six one-to-one interviews were conducted and recorded with HMYOI personnel; two members of the forensic psychology department (one senior - FP01, one trainee - FP02); two prison officers (PO01 and PO02); and two separate interviews with the mindfulness teacher.

Interviews with the forensic psychologists were conducted, on a one to one basis, on the same day, in a private room within the psychology department. Those conducted with the prison officers took place over a single day, in an interview room in the halls of residence. Interviews with the mindfulness teacher were conducted at the University of Glasgow. They were spaced one year apart and reflected different time points in his overall experience of delivering the courses.

Figure 4.3 and Figure 4.4 provides an overview the interview guide used for Polmont staff and the mindfulness teacher, respectively. Interviews with the prison staff lasted approximately 30 to 50 minutes, those carried out with the mindfulness teacher being 60 to 90 minutes in duration. During the interviews, Polmont staff were asked about their own understanding (and views) of mindfulness; whether the institute was supportive of the course; how it was perceived by the young men and other staff; any changes they noticed in the young men; factors that supported/hindered recruitment/retention efforts; and any

suggestions regarding improvements to the course or its delivery within the YOI. The mindfulness teacher was asked to share his experience of delivering the courses, his observations as to how the young men related to the practices and teaching, what aspects had gone well (or had not), in what ways recruitment and retention might be improved upon and ways in which the course might be tailored to suit better the needs of the young men as he perceived them.

Figure 4.3 Interview guide for Polmont staff

Is the course easy to describe?

- Can you tell me what you know about mindfulness as an approach to helping people manage stress? It's been increasing in popularity recently – have you come across it?
- Can you tell me what you know about the mindfulness programme being delivered at Polmont?
- What are your thoughts about whether learning mindfulness techniques will help the young men?
- What about other staff - how do you think the staff at Polmont view mindfulness?

Is the course distinct from other services?

- In your opinion is the mindfulness course any different from what is currently been delivered at Polmont?
- Does it fit in with Polmont's overall approach? i.e. is it a services that you feel is needed?

How was the course perceived?

Participants:

- How do you think the young people found the course?
- What do you think went well for them?
- Are you aware of any struggles that they experienced from attending the course?
- Did you notice any changes in their behaviour?
- Did you notice any changes in how they responded to others?
- Did you notice any changes in their attitude?
- Did you notice any benefit to their overall wellbeing?
- Were there any other changes that you were aware of?

Staff:

- Can you tell me a little bit about your own involvement in the mindfulness project for example what was your role? (Where relevant)
- Do you think that the organisation as a whole is supportive of this type of intervention?
- Is there anything that might affect running this course in the future?

Recruitment

- How do you feel recruitment for the course went?
- What factors do you think hindered recruitment?
- What factors do you think helped recruitment?
- Do you have any suggestions as to what may improve recruitment?

Suggestions/Future plans

- Have you any suggestions as to how things could be done differently so that mindfulness can be delivered easily within Polmont?
- Did you feel there were any obstacles to delivering the intervention?
- What would be required in order to maintain the course at Polmont?

Additional Information

- Is there anything else that you would like to add that I haven't mentioned

Figure 4.4 Interview guide for the mindfulness teacher

The course and its usefulness to incarcerated young men

- Can you tell me what your understanding of mindfulness is?
- Can you tell me about the course(s) you delivered?
- What were your thoughts about the usefulness of mindfulness to these young men?
- What about staff - how do you think the staff view mindfulness?
- Do you think that the organisation as a whole is supportive of this type of intervention? Can you tell me more?
- In your opinion is the course any different from what is currently been delivered at the YOI? If so, how

Purpose of the course/experience of teaching the course

- What do you think the course is trying to achieve?
- How did you find teaching the course? What were your expectations?

Recruitment

- How do you feel recruitment/retention for the course went?
- What factors do you think hindered/facilitated recruitment/retention?
- Do you have any suggestions as to what may improve recruitment/retention?

Facilitators and barriers

- What challenges (barriers) did you face when delivering the course(s)? How did you manage these?
- What aspects of the course(s) have been successful (or not)?
- How did you find managing the group?
- In your opinion, have there been any benefits for the staff?
- Is there anything that might affect running this course in the future?

Appraisal of the course (perception of participants responses)

Participants:

- How do you think the young men found the course?
- What do you think went well for them?
- Are you aware of any struggles that they experienced from attending the course?
- Did you notice any changes in their (1) behaviour (2) interactions with others (3) attitude (4) overall wellbeing.
- Were there any other changes that you were aware of?

Facilitators and barriers

- What challenges (barriers) did you face when delivering the course(s)? How did you manage these?
- What aspects of the course(s) have been successful (or not)?
- How did you find managing the group?
- In your opinion, have there been any benefits for the staff?
- Is there anything that might affect running this course in the future?

Recourses available

- From a practical perspective how did you find delivering the course? For example comfort and set up of the room, support on site, location, access to the building.
- Are there any additional resources that would have been helpful?

Additional Information

- Is there anything else that you would like to add that I haven't asked?

In addition to the interviews, the mindfulness teacher provided his own audio notes regarding the *form* i.e. structure of how the mindfulness course was delivered and *function* i.e. the content of the course [224], along with his experiences and reflections on the young men's responses to the specific practices in each session.

The information provided by the mindfulness teacher was not structured; it varied, but mostly focused on his thoughts and observations about how the course was progressing in reality versus how he would like it to be under ideal circumstances. The frequency, volume and depth of his recordings ranged from weekly reports, to reports covering six or more sessions, to summaries of the programme as a whole. These data were listened to, transcribed, organised and thematically analysed, before being interpreted, summarised and triangulated with the interview data coming from the young men.

4.2.9 Qualitative data management and analysis

Thematic analysis (TA) was used as a method to analyse the interview transcripts [198]. The data corpus consisted of 26 recordings of interviews and 38 session reports. Meeting the three objectives outlined in section 4.2.6 required slightly different approaches. These are described in relation to each objective.

Course Development To develop and optimise the course the mindfulness teacher tested out different teaching styles and techniques and I provided feedback using rapid appraisal methods. Rapid appraisal (RA) allows preliminary understanding of data to be generated quickly, yet systematically [225]. Interviews with the young men were carried out one week after they had completed the course. An administrative secretary in the General Practice and Primary Care (GPPC) section of the Institute of Health and Wellbeing at the University of Glasgow transcribed the interviews verbatim. All transcripts were anonymised.

In keeping with good practice [226], all of the word files were read whilst simultaneously listening to the audio files. This technique allowed me to check transcription accuracy, note down different headings, make short notes in the page margin and reflect on how the data related to the research objective. The qualitative data (interview sound files and transcripts) were all uploaded and stored on QSR NVivo 10.

For this phase of the research, where the data were being used to inform course optimisation, data were analysed deductively [198]. Deductive approaches are *purpose*- or *theory*-driven i.e. the data is searched with a specific intention in mind. They were used specifically at this point to investigate positive and negative experiences of the course, as reported by the young men and the mindfulness teacher and to identify barriers and facilitators to initial and sustained engagement. Therefore, the coding matrix that was devised reflected these specific points of focus, comprising four broad themes. These were (1) barriers/dislikes, (2) facilitators/likes, (3) what worked and (4) suggestions for improvement.

A matrix of participant characteristics and themes was constructed using what each interviewee had said on each topic, alongside data from the mindfulness teacher's session notes. As each set of interviews was conducted, and the analysis process repeated, responses were added to the matrices and compared, so that responses to different courses could be explored.

A copy of the matrix (see Table 4.3 for an example), along with a brief summary of the overall themes for all individuals interviewed in each group, was emailed to my two supervisors for discussion in subsequent research meetings. Meetings were typically scheduled four weeks after data collection. This allowed for discussion of the transcripts, emergent themes and necessary modifications to the course going forward. This process allowed records to be kept detailing the rationale behind optimisation changes.

Following each of these meetings a project management meeting was held with the mindfulness teacher and both of my supervisors. The purpose was to discuss proposed changes to the course and explore ways to implement these in subsequent courses. Although the mindfulness teacher was not directly involved in the analyses, his input at this stage was essential so that suggested changes could be incorporated into forthcoming courses.

Table 4.3 Example of the coding matrix

Participant characteristics	Barriers/dislike	Facilitators/likes	What works	Suggested Improvements
PM03 Age: 20 Education attainment: Primary Sentence length: 216 months Previous experience of meditation: No No. of sessions completed: 8/8	*"… everyone left, that's because they thought right it's getting boring there's no point in me being here; it's not helped me out at all"*	*"Made me think that there's stuff I could do with myself that I've never being able to do before this course… like body scanning"*	*"It relaxed my brain [body scan], taking thoughts out of my head that I don't want to be there … body scanning stops them from coming in; relaxes me."*	*"I don't think you need to change anything because what you've done it's important"*
PM07 Age: 20 Education attainment: Secondary Sentence length: 40 months Previous experience of meditation: No No. of sessions completed: 8/8	*"I think it could help a lot of people in here, if they stuck by it, but I don't think they've got the patience for it"*	Breathing practice, body scan and meditation component.	*" helps you concentrate a lot more [meditation part]"* *"helps you deal with certain situations …[breathing practice] just move away from certain situations instead of letting it escalate"*	*"Try and spruce up the classes … make them a wee bit more appealing instead of just like on the first day sitting everyone down and just trying to make everybody quiet"* *"show them a situation … like how it could help them in certain situations"*

Experience of the course Once all of the data were collected a comprehensive analysis was undertaken on the full data set. This was guided by the approach suggested by Ziebland and McPherson (2006), in order that the thematic analytic procedure undertaken was appropriate, rigorous and systematic [226].

Table 4.4 details the seven steps advocated by Ziebland and McPherson.

Although the stages have been presented sequentially, the analysis was iterative. Thinking about and coding the data took place throughout the course of the research.

Table 4.4 Overview of Ziebland and McPherson's framework

Thematic Analysis approach to analysing qualitative textual data	
1.Transcription	Interviews are transcribed into textual data
	Transcription preferences made clear i.e. the focus of research question and method used for analysis guide transcription process
	Recordings listened to, in order to familiarise researcher with the data
2. Thinking about the data	Being aware of the researcher's own ideas about likely issues in the data
	Being aware of relevant theory
	Keeping a notebook to record ideas as familiarity with the data grows
3. Coding	Selection of an appropriate package to manage data (storage and coding)
	Work in collaboration with more senior experienced researchers
	Identify initial themes
	Place data into sections so that they can be retrieved with ease
	Ensure data under each heading is manageable and meaningful
4. Analysis	Gather together all the data coded under a similar heading
	Ensure that all different perspectives and accounts of experience are represented under their relevant headings
5. The 'One sheet of paper' method (OSOP)	Read through each section and note all the different issues raised (include respondents ID)
	Produce summaries all of the issues within each code, including both those that are common, and those that are not common (with respondents' IDs)
	Consider how these codes will group together into themes ('Axial coding'). Ask self: *'What is going on in the data that is reflective of everyone's experience?'*
	Continuously refer back to the raw data of the respondents
	Enrich analytic depth by returning to the literature to explore how insights fit/ discuss themes with colleagues from diverse disciplines
6. Testing and confirming findings	Question the quality of the data i.e. checking findings and being sceptical over explanations
	Look for 'negative evidence' i.e. 'deviant cases' that do not fit with the emerging story
7.Write up	Identify the 'story' that can be told and present findings

4.2.10 Transcription and thinking about the data

Following on from the rapid appraisal techniques described in the previous section, qualitative data were subjected to a more in-depth thematic analysis (findings reported in Chapter 6 *Experience of the course*). The initial step involved thinking about the data, reading the transcripts and deciding upon the themes or concepts under which the data could be labelled, sorted and compared [198].

4.2.11 Coding and analysis

A hybrid process of inductive and deductive thematic analyses was used to interpret the raw data and gain a better understanding of participant experience. An inductive approach was used to identify emergent themes [227]. This approach was facilitated by remaining as true as possible to the raw data i.e. the first-hand perspectives of the young men, in an attempt to minimise the risk of overanalysing the data, generating inadequate interpretations or 'shoehorning' the data to 'fit' with theoretical frameworks or psychological constructs. This form of thematic analysis was 'data driven' i.e. coding the data without trying to make it fit into a pre-existing coding frame [227].

Deductive approaches were also used to search the data with a specific aim in mind i.e. to elicit data related to the specific research objective and in response to the questions in the interview guide. This facilitated a more focused analysis of specific aspects of the data [227], reflecting the questions posed by the interview guide. Ritchie and Lewis (2003) note that both deduction and induction are involved at different stages of the qualitative research process [197], usually to generate a more comprehensive picture, bringing to light the raw experience of those interviewed whilst also drawing out data relevant to the research question. In addition, a similar process to that outlined above was undertaken to help identify factors that may have contributed to the suboptimal recruitment and retention reported in this study. To meet this objective, a deductive approach was taken with the specific intention of illuminating factors that may have hindered recruitment and retention efforts.

Initial labels were rather loosely defined at this stage. As far as possible they were based on the young men's own words i.e. 'in vivo codes' (see Table 4.5).

Table 4.5 Example of initial coding

Participant characteristics	Participants response	Researcher's Reflections
PM06 Age: 20 Education attainment: Secondary Sentence length: 15 months Previous experience of meditation: No No. of sessions completed: 7/8	*"can relax and all that. I get more concentrated with things and all that. I've started thinking about things before I do them plus obviously it bypasses time and that as well; gets us out of the gaff [cell] and that for a while, so it's been quite good. It's been a good laugh as well".*	Relax Better concentration Thinking about things Bypasses time Time 'out of the gaff' Good laugh

In its original form the material was slightly unwieldy. Paraphrasing, or providing short descriptions reflecting my thoughts on what each participant was saying, was used to allow a quick overview when sifting through the data. This process of familiarisation and paraphrasing was continued until similarities, diversities and nuances of the data set started to emerge.

An initial list was generated, facilitating the development of a manageable coding frame, drawing upon recurrent themes in the data (*emerging*) and issues introduced via the interview guide (*anticipated*) [226]. The coding framework contained a hierarchy of broader, higher order categories or 'big themes' and more specific sub-themes. For an example of this see Table 4.6.

Table 4.6 An example of an early coding framework

No	Broad Themes	Sub-themes	Description of theme
1	Improved Wellbeing	1.1 Decrease in perceived stress 1.2 Increase in relaxation 1.3 Improved sleep 1.4 Less depressed 1.5 Better concentration 1.6 Happier	Increase in positive subjective physical, emotional or mental experience or a reduction in negative affect, mental or physical discomfort.
2	Improved emotional regulation ability	2.1 Ability to deal with difficult personalities/conflict 2.2 Improved emotional control 2.3 Increased ability to abstain from habitual responding 2.4 Reflect on situation and attune to own needs 2.5 Less angry 2.6 Less reactive/impulsive	This refers to the ability to monitor internal emotional and cognitive activity and behavioural responses and being able to regulate these accordingly.
3	Improved cognitive functioning	3.1 Shows a capacity to observe own cognitive process 3.2 Shows flexibility in thinking 3.3 Approach difficult thoughts with a new perspective 3.4 Paying attention/better concentration	This includes (1) a shift in perspective (reperceiving) (2) a reappraisal of their abilities or priorities (value clarification)
4	Environmental influence	4.1 Aversion (found situation strange and weird) 4.2 Found group threatening 4.3 Curiosity 4.4 Safety 4.5 Relaxed atmosphere	This refers to how comfortable the participants are with adapting to this novel way of relating in a group setting and also their impressions of this environment
5	Motivation to practice/engage with course	5.1 Resistance 5.2 Distractibility 5.3 Dislike 5.4 Social influence 5.5 Peer pressure	This refers to the willingness and motivation of the participant to take part in the group activities and meditation practices
6	Relatedness (relational depth)	6.1 Qualities demonstrated by the facilitator were seen to be beneficial 6.2 Receptive to others 6.3 Accepting of others 6.4 Sense of cohesion 6.5 Able to relate to group members and offer understanding/empathy 6.6 Commonality: seen as part of the group	This includes (1) the personal qualities of the facilitator noted by the participants and (2) the type of relationships established

At this stage, two randomly chosen un-annotated original interview transcripts were emailed to both supervisors, along with the emerging coding framework. The purpose of doing this was firstly to allow them to read independently through the original transcripts, making their own notes, and secondly to enable them then to appraise the emerging coding framework and determine its accuracy and appropriateness. Following discussion, it was suggested that some of the initial codes I had developed were too conceptual or analytical, drawing on my background as a psychologist rather than on what young men said. This

process enabled me to reflect on the ever-present potential for researcher bias, especially in the early stages of analysis and highlighted the need to develop reflexivity as a matter of course, whereby a constant awareness of the possibility of over-interpretation of the data is observed and every attempt made to remain as close as possible to the true nature of the raw data.

On the basis of this and subsequent, weekly, meetings a simplified coding frame was developed consisting of four broad themes and 11 sub-themes. This allowed stage three of the Ziebland and McPherson framework (coding) to continue. Attention then returned to the original transcripts, where the agreed upon coding framework was tested against the raw data. Table 4.7 provides an example of how the coding frame was used to organise the data under the four broad, descriptive, themes.

Table 4.7 Example of the coding matrix (thematic chart) used to organise the data

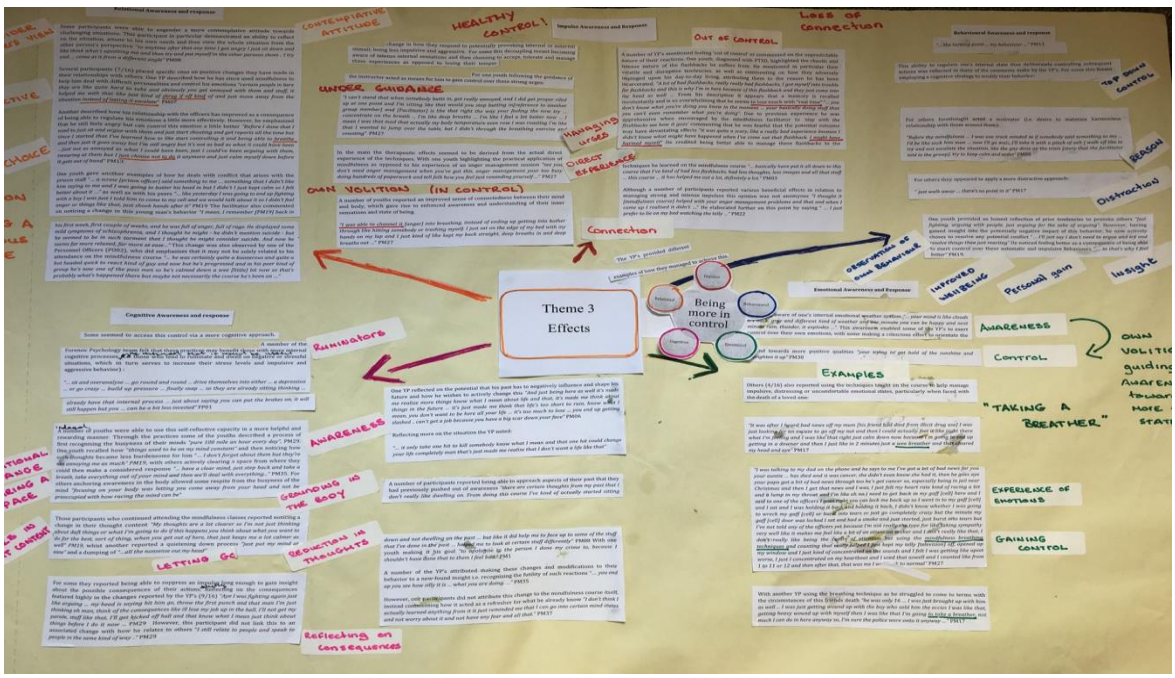
Participant characteristics	**Theme 1 : Coming along**	**Theme 2: Experience of course**	**Theme 3: Effects**	**Theme 4: Future use**
PM05 **Age: 19** **Education attainment: Primary** **Sentence length: 14 months** **Previous experience of meditation: No** **No. of sessions completed: 3/8**	*"I just got asked to come down and talk about it like because I knew I couldn't sit still and it was all about that"*	*"I just couldn't sit for like a full hour or whatever we were doing it for, I could do it for 15 minutes"* *"calm atmosphere, quite relaxing atmosphere, everyone was all relaxed and that. There was no one shouting and jumping about and all that sort of thing, everyone was sitting relaxed and wanting to give it a go"* *"... just a break in-between or something like that, just a chance to go out the room and sort of go back to normal sort of thing know what I mean because you're in here and your pure relaxed and likes of me it's something I'm not used to and then going just back to like you normally are then coming back and doing it again just like shorter sessions of it."* *"... he would wait till the end of the session and then say it to you, he wouldn't interrupt everyone else in the session sort of thing which was good"*	*" I think because I never done that many it didn't really do that much"* *"... it's relaxing like that's the main thing it's really relaxing."* *"Gets me to sleep most nights, especially if it's one of the nights where you can't sleep where you just keep tossing and turning that sort of thing you just fire that on and you relax sort of thing, calms you down."*	*"I don't know, I don't know if you'll notice it in here because your always in your own cell sort of thing anyway so you hear most things because you're not talking or anything like that and then when you're out in the hall and in your work party your always talking to someone so it's I don't know if you'd notice it really in the jail but probably when your outside you would notice it a lot more."*

4.2.12 The ‘one sheet of paper’ (OSOP) method

The next stage of analyses involved using QSR NVivo 10 to group text coded together under the four broad themes. Each NVivo file was typically 20-30 pages in length, and contained similar, varied and diverse perspectives under each particular theme. Time was spent examining how the data might now group together under the broad themes, with the possibility of so called ‘axial coding’ being considered.

Ziebland and McPherson (2006) suggest that researchers should ask at this stage: “*What is going on in the data*?” [226]. The ‘one sheet of paper’ (OSOP) method was next used to provide an overview of the data, where all perspectives apparent in the coded extracts were laid out alongside their respective participant IDs on a large single sheet of A2 paper. Figure 4.5 shows an illustration of this, using data from the ‘effects’ broad code on what participants said about ‘being more in control’. By doing this, it became apparent that certain perspectives were very similar, and some distinctly different (deviant cases). Charting the data in this way rendered comparisons and connections easier to see. Axial coding was then used to explore potential relationships between categories and identify connections between them, which might not otherwise have been apparent [226]

Figure 4.5 Visual illustration of the OSOP process from the ‘effects’ broad code on ‘being in control’



A similar sequence of analysis to that outlined above (i.e. Ziebland and McPherson 2006) was followed when appraising the remaining qualitative data.

The coding frame, which had been developed for the young men, was applied to the data from the prison staff and the mindfulness teacher. In the main, there was a good fit. Most headings seemed appropriate. Due to the similarity of the data, triangulation at a later stage in the analysis was thought to be a possibility, bringing together data regarding similar topics from diverse sources. However, additions to the coding framework were necessary to accommodate fully these stakeholders' perspectives, as the interview guides for both the prison staff and the mindfulness teacher had different emphases at certain points.

4.2.13 Confirming findings and writing them up

The next stage of the thematic analysis involved generating a descriptive account that accurately conveyed a representative collation of the data arising from the interviews.

During this stage I had several discussions with my supervisors as how best to present the findings. Discussions focused on whether or not to include quotes in the text, whether and where to use numerical data when summarising convergent views, and where and how to triangulate diverse stakeholder opinions. It was agreed that quotes would be used throughout the account as a means of illustrating the story and keeping it grounded in the language and world-view of the participants. It was also agreed that numerical data would be used to bolster the reporting of findings; firstly to provide an overview of baseline characteristics for the young men, but also to allow the reader some idea of how common, or not, certain views were. It was also decided that the main body of the account would be populated with data coming from the young men and their quotes, but that this would be supplemented, where appropriate, with other stakeholder views.

4.2.14 Drawing the findings together

Creswell et al. (2004) emphasises that taking a mixed methods approach should be more than just collecting and analysing qualitative and quantitative data; the inherent assumption underpinning the use of mixed methods is that they can provide complementary insights into the same topic, draw on strengths unique to each approach, and thus allow for a more complete and robust analysis. It is the integration of data from different methods that

distinguishes a mixed-methods approach from a set of mono-method studies, conducted independently [228].

Creswell (2003) suggests a systematic framework for approaching mixed methods research; outlining six design strategies that can be applied [193]. The design strategy chosen is based on four key questions. These are:

1. What is the implementation sequence of data collection?
2. What method takes priority during the data collection and analysis?
3. What does the integration stage of finding involve?
4. Will a theoretical perspective be used?

Researchers will often employ qualitative and quantitative methods in an effort to answer different aspects of the overall research question. In this study a mixed methods convergent design was used, with qualitative and quantitative data given equal priority with sequential data collection and concurrent data analysis. A pre-and–post study design was used to assess the potential effectiveness of a mindfulness-based intervention whilst semi structured interviews with the young men were conducted to consider its acceptability and feasibility, as well as clarifying meaning and understanding of its' mechanisms of action. Qualitative data collection was also used as a means to explore, in more depth, the subjective views of the young men regarding the usefulness of this intervention to their overall health and wellbeing and track emergent trends that might be related to participation in the programme. In addition to this, semi-structured interviews were also conducted with staff members (Forensic Psychology Department and Personnel Officers) and the mindfulness teacher, to consider further the acceptability and feasibility of this intervention.

Based on the systematic approach outlined by Creswell's mixed methods were used to confirm, cross-validate, or corroborate findings; data collection was concurrent. The purpose for using this design is that both methods could then be used to overcome a weakness in using one method with the strength of the other. Combining data, derived from differing philosophical underpinnings, in this way, can represent an opportunity for the emergence of new discoveries through a 'dialectial discovery', thus advancing scientific knowledge [229].

The ‘points of interface’, where integration between methods occurs, can differ. For the purpose of this thesis, data were integrated at the interpretation stage when both sets of data had already been analysed separately. Having completed qualitative analysis, findings from the qualitative data were drawn together with those from the quantitative data, by considering what the young men said about the effects of the mindfulness programme in relation to the constructs measured by the seven self-report questionnaires. This process was used to capture different dimensions of the same phenomenon [230] and in particular the extent to which quantitative and qualitative findings converged or diverged.

This was a two-step process. First, a matrix was created which listed the name of each outcome measure, a definition of the construct it measured, the effect size and significance of comparison between baseline and post-intervention scores. Second, using a deductive approach, the qualitative data contained within the broad code ‘Effects’ was systematically interrogated for accounts which could be interpreted as matching the definition of the construct. So, for example, PM29, Course 4 said: *“I couldn’t like focus on what was happening … I just wasn’t concentrating at all … before I wouldn’t have been able to like sit through … I’d get up and walk out …”* and this was interpreted as matching the definition on the BIS-11 ‘attention’ sub-scale, defined as ‘Inability to focus or concentrate’. Convergence (where qualitative data that ‘matched’ the definition was found, as in the example above) and divergence (where qualitative data did not match the definition or when there was no mention of the definition in accounts) were all noted. The results are reported in Chapter 8 *Experience of the Course*.

4.2.15 Research ethics and governance

Five meeting were held during the early stages of development, prior to the courses commencing (September to December 2013) to address important governance issues and help speed up the process of gaining access to the site, as we were working within a short time span. The follow issues were addressed:

1. Clarification regarding indemnity and safety of the mindfulness teacher and myself, to include receiving Personal Protection Training (PPT).

2. Determining the feasibility of gaining ethical approval from the Scottish Prison Services (SPS) who govern the institute

3. Identification of the procedures necessary for gaining access to the institute, having direct contact with the young men and bringing course and evaluation materials onto the premises. This involved receiving clearance from Disclosure Scotland and attending onsite compulsory training

These issues required action before any contact with the young men could be permitted, or recruitment initiated. In order to support the delivery of the courses, regular discussions with the forensic psychology team were necessary, and took place throughout the duration of this project. Once all of the necessary procedures were put in place I was able to commence with the study.

Full ethical approval for the study was provided by the College of Medical, Veterinary and Life Sciences (MVLS) Research Ethics Committee (REC), University of Glasgow (Project No. 200130021), and the Scottish Prison Services (SPS) Research Access and Ethics Committee (RAEC) (Appendix 11a and 11b). Following discussion with the Head of Ethics at SPS, the REC at the University of Glasgow, the forensic psychology team at HMYOI Polmont, and the NHS West of Scotland Research Ethics Service, ethical approval from the NHS was deemed not to be necessary for this study (Appendix 11c).

Throughout the duration of the study two amendments were posed to the REC (changing the name of the course and modifying the recruitment approach, providing 'taster sessions' and advertising over the prison radio); both were approved (Appendix 11d and 11e)

In keeping with the good practice framework for research ethics at the University of Glasgow, all study data were stored in a secure site file at the University of Glasgow, with restricted access confined to authorised users only, to include both research supervisors, admin staff in General Practice and Primary Care (GPPC), and myself. Informed consent was obtained from all participants prior to inclusion in the study, and this information was stored in a secure locked filling cabinet at the University of Glasgow, whilst records of recruitment and retention, questionnaire measures, and interview data were all kept separately in a secure location within GPPC.

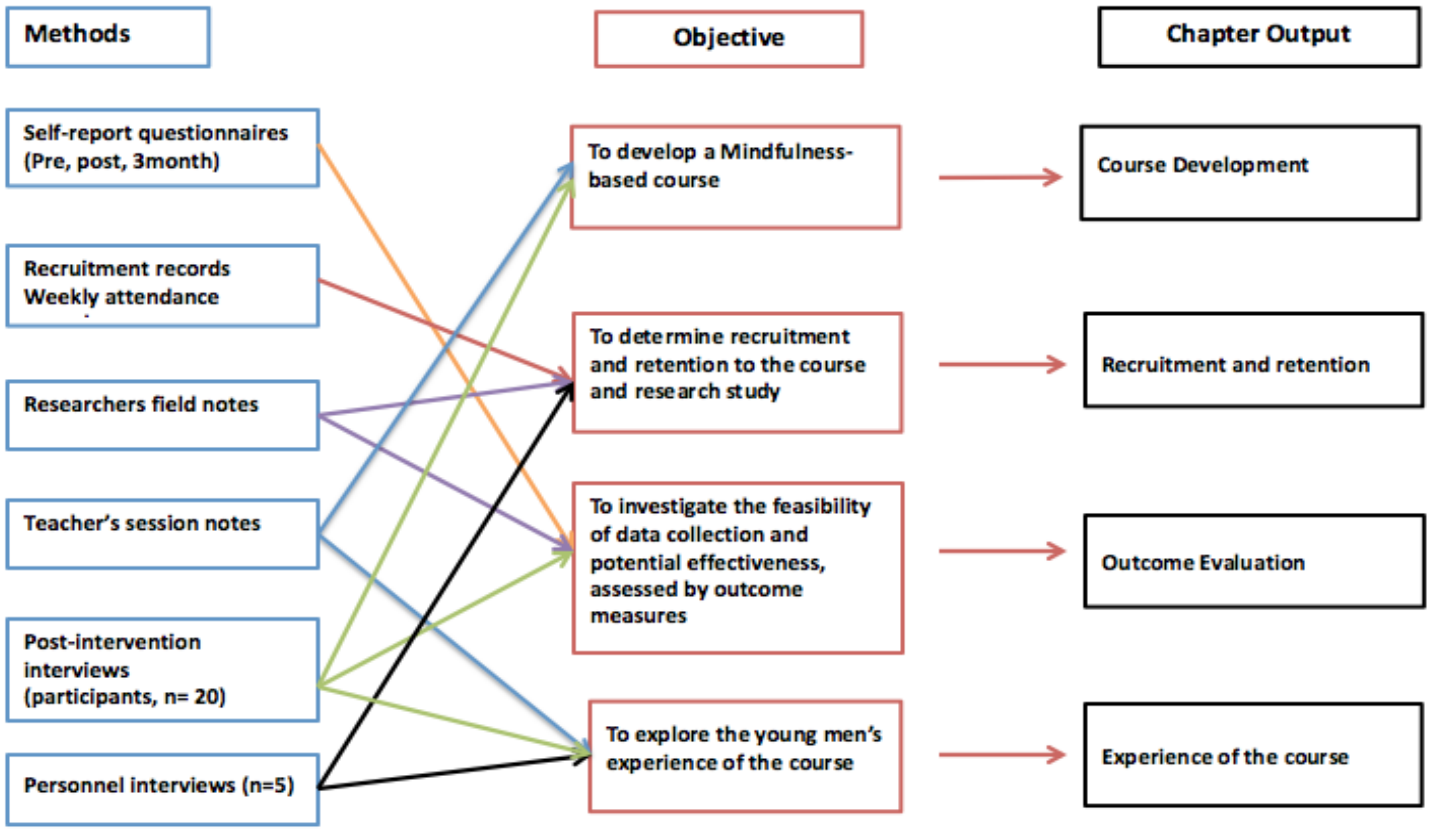
The study protocol stipulated that the mindfulness course would be discontinued in the event of any overt incidence of harm derived from taking part in the mindfulness training.

It was recognised that participants might experience some emotional or psychological difficulties from taking part in the course, where attention may be brought to aspects of experience that could be distressing. The mindfulness teacher had no 'clinical' responsibility for the participants during the course, but it was agreed in advance that should any health concerns for the participants arise during the course then he would report these immediately to the lead forensic psychologist, or the duty psychologist for the day. This would then activate the normal 'in-house' procedures for managing this type of scenario. This procedural arrangement resulted in the mindfulness teacher engaging in weekly de-briefing sessions with the psychology team, in order to pass over any concerns.

4.3 Conclusions

In summary, this thesis addresses four research objectives using a pragmatic mixed-methods approach. Figure 4.6 illustrates how each method was used to address each research objective, where in some cases multiple methods were used; and also illustrates where the findings for each respective objective will be reported.

Figure 4.6 Methods used to address the research objectives, with corresponding chapter



As the figure demonstrates information gathered from self-reported questionnaires was used to inform findings reported in Chapter 6 *Outcome Evaluation*. The information gathered via recruitment, retention, and weekly attendance records were used to inform finding reported in Chapter 5 *Recruitment and Retention*. The data gathered via researcher field notes are reported in two chapters in this thesis: Chapter 5 *Recruitment and Retention* and Chapter 6 *Outcome Evaluation*. The data collected from the mindfulness teacher's session noted were used to inform findings reported in two chapters in this thesis: Chapter 5 *Course Development* and Chapter 8 *Experience of the course*. The information derived from interviews with the young men was used to inform findings reported in three chapters in this thesis: Chapter 5 *Course Development*, Chapter 6 *Recruitment and Retention*, and Chapter 8 *Experience of the course*. The information coming from interviews conducted with HMYOI Polmont staff and the mindfulness teacher data was used to inform findings reported in two chapters in this thesis: Chapter 6 *Recruitment and Retention* and Chapter 8 *Experience of the course*.

Having outlined the methods used to guide the research process the next chapter will now address objective 1 – *to develop a mindfulness-based course*.

Chapter 5 Course Development

This chapter addresses objective 1 – *developing a bespoke mindfulness course*. Based on what is known about mindfulness and how it operates (see Chapter 2) and having established, in the scoping review (see Chapter 3), that no definitive programme for incarcerated young men is available, a judgment was made that a bespoke programme was required. The decision was made to start with the standard Mindfulness-Based Stress Reduction (MBSR) programme [125], with a view to potential modification and optimisation of the approach, based on early feedback and findings from the young men attending the sessions and the mindfulness teacher delivering the course.

Optimisation refers to the refinement of the intervention to suit the target population; seeking to identify the optimal 'content' and 'dose'. Campbell (2007), writing about complex interventions, suggests that optimising an intervention involves identifying [231]:

1. Key processes and outcomes
2. Mechanisms facilitating positive change
3. Aspects limiting the change process
4. An estimate of quantification of effects.

As described in the previous chapter, a flexible approach was taken to course development and optimisation in response to each different group of young men who went through it, and in keeping with the MRC guidelines [206]. This allowed the style and mode of delivery to be adapted to match best the characteristics of each group, such as general levels of motivation and attention, preferred learning styles, and the groups' collective cognitive ability.

This chapter describes how the mindfulness-based course for young men within a YOI was developed, the refinements and modifications that were made at each stage leading to the final optimised version of the course. Demographic and other details about the young men who participated are provided in Chapter 8 *Experience of the programme* section 8.1.1.

5.1 Overview of courses one to seven

5.1.1 About the teacher

The course was led by a 26-year-old male mindfulness teacher, who was working towards a post-graduate diploma in 'Studies in Mindfulness' at the University of Aberdeen. Additionally, the teacher had an MA in Applied Positive Psychology (University of Pennsylvania), and extensive experience of teaching mindfulness to disadvantaged young people in Glasgow. As the teacher did not have a clinical background in mental health he was closely supervised by a medical professor (SM) based at the University of Glasgow, with clinical and research expertise in mindfulness.

Throughout the delivery of these courses it was necessary to remain open regarding how the core features would be delivered so that modifications and adaptations could be made to suit the young men taking part. This meant that different activities were introduced into the programme in each of the seven courses to deliver the core content; a table describing each activity, its purpose and highlighting intended learning outcomes for all included activities is provided in Appendix 12.

The next section describes each course in turn.

5.2 Course One

Early discussions with the forensic psychology team had identified several difficulties in engaging young men in programmes in this setting. They included young men's difficulty with concentration, their distractability, low levels of literacy and potential for manipulative behaviour towards external teachers. Gang affiliations were also highlighted as a likely problem, which could potentially produce divisions and/or tensions within the mindfulness groups.

Based upon this information, some minor alterations to the MBSR programme were made prior to starting the first course; these included a shorter session length i.e. 90-minute sessions compared with the standard 150-minute sessions, omitting a full-day

retreat at week six, and simplification in language and content of the educational components. Otherwise, the initial course that was delivered closely mirrored the standard MBSR programme (Table 5.1).

Eight young men signed up to attend this course. Four completed the course; five agreed to be interviewed, including four 'completers' and one 'non-completer'.

Table 5.1 Overview of the components included in course one

Educational components	Core mindful components (duration)	Activities and exercises
Conceptual learning: ➢ **What is mindfulness?** ➢ **Improving attentional abilities; introducing the wandering mind, automatic pilot, and present moment awareness** ➢ **Desire and aversion; why do we like or dislike things?** ➢ **Acceptance; developing an non-judgmental attitude** ➢ **Dealing with stressful situations; adverse effects of stress** ➢ **Compassion; exploring the idea of self-compassion**	➢ **Body scan (progressing from 15-30mins; delivered in all sessions)** ➢ **Sitting Practice (ranging from 15-30 mins; delivered in all sessions)** ➢ **Movement (10 mins; delivered during session 3 and 4)**	➢ **Weekly reflections on concepts discussed in session** ➢ **Raisin exercise** ➢ **Personal mission statement** ➢ **Future aspirations and achievable goals.** ➢ **Reading selected poems**

5.2.1 Overview of course one

The mindfulness teacher was unsure as to what to expect, as he had never delivered a mindfulness course in a YOI setting. However, he was reassured by early feedback:

> *"We did the body scan for 30 minutes. Went really well. The inquiry process was quite similar to normal MBSR groups and one commented that he had never been that still for that long in his whole life."* [Mindfulness teacher - Session notes]

The main difference he noted was the young men's level of distractability, low attention, and aggressive nature towards each other, highlighting a potentially important barrier that had previously been discussed with staff at HMYOI Polmont in the development phase:

> *"Two of them directed a lot of verbal abuse towards him [another participant on the course], telling him they didn't want him to come back and calling him stupid*" [Mindfulness teacher – Session notes]

Challenges like this made it difficult to adhere to the course protocol and required flexibility and confidence from the mindfulness teacher, in order to deal directly with the difficulties that were arising. Due to on-going disruptions the mindfulness teacher felt it necessary to deviate away from the scripted session, but as is usual in mindfulness courses, used emergent situations that were challenging as a means to teach mindfulness concepts to the group.

Possible underlying issues with participants' mental health became more and more evident to the mindfulness teacher as the course progressed:

> *"The participant with PTSD expressed … his mind had been full of thoughts when practising. He seemed quite concerned about this – visibly agitated"* [Mindfulness teacher – Session notes]

The mindfulness teacher queried whether the context in which the course was being delivered was interfering with the young men's level of engagement. For example, in order to adhere to the prison's safety regulations the group was delivered in a windowed room. The teacher felt that the young men became self-conscious or disengaged when under observation either by their peers or prison officers stationed outside the room:

> *"A lot of them got embarrassed when people walked by the room"* [Mindfulness teacher – Interview data]

During session six of this course a trainee forensic psychologist, who at the time was the recruitment manager for this project, requested to sit in on the session. In his notes the teacher mentioned finding this dynamic difficult, perceiving the psychologist's agenda to be in contrast with his own. He noted that she asked questions specifically related to the young men's offending behaviour:

> "*She said - Has there ever been a time when a thought has made you do something that you later regretted?"*[Mindfulness teacher – Session notes]

This was something that he had been keen to avoid, as judging the young men by their offending behaviour or trying to 'change' them runs contrary to the underpinnings of mindfulness. Furthermore, the mindfulness teacher was keen to focus these sessions around strengths of character and avoid focusing specifically on the young men's prior criminal history, which is commonly addressed in other programmes at the institute (See appendix 9, for a list of rehabilitate courses routinely delivered at the institute).

The mindfulness teacher also perceived an undertone of vigilance, noting in particular this sense of wariness and guardedness, *"to begin with they were quite defensive is maybe too strong but maybe kind of just watch, just kind of like checking me out like do I trust this guy?"*

As the sessions continued, the teacher reported that the group were beginning to work well together and appeared to be progressing in their mindfulness practices. He also noted a shift in his style of teaching, feeling less on guard and more relaxed with the young men. One example from his session notes demonstrates this shift in his approach to teaching:

> *"Previously, I had sat while the young men lay down. This time, however, I decided to lie as well. I felt safe within the group"* [Mindfulness teacher – Session notes]

Furthermore, in his records of their final session together, the mindfulness teacher summed up a sense of cohesion that had formed amongst them all:

> *"One of the YOs [young offenders] said 'are we doing a group hug now?' and everybody laughed. There was humour and playfulness and a little bit of awkwardness in it, but I think it also reflected that genuine warmth and friendship that had developed over the 8 weeks of simply being together."* [Mindfulness teacher – Interview data]

However, safety concerns were raised during this course when prison staff interrupted a session to search the young men. This revealed that one of the participants was carrying a knife.

Two of the core mindfulness components i.e. body scan and breathing practice were delivered in all sessions. These differed in length and intensity to match the young men's level of engagement, in general lasting between 15 -30 minutes in duration. Short mindful movement practices were delivered during two of the eight sessions, namely session three and four.

5.2.2 Experiences of course one

From the five young men interviewed, two offered no suggestions as to how the course could be improved, stating that it worked well in its current form. The other young men suggested that *'being bored'* featured frequently during the practices. Feeling this way was identified as a significant factor contributing to lack of interest and withdrawal from the course. One young man said:

> *"... everyone left, that's because they thought right it's getting boring there's no point in me being here it's not helped me out at all"* [PM03]

A participant who dropped out after the third session suggested that interspersing short breaks amongst the practices might soften the intensity of the meditation practice:

> *"Short sessions, not shorter sessions probably the same length but just a break in-between or something like that, just a chance to go out the room and sort of go back to normal sort of thing, know what I mean, because you're in*

here and your pure relaxed and likes of me it's something I'm not used to" [PM05]

Another suggested that making the sessions more engaging and interactive might ease participants into the practices a little more:

> *"Spruce up the classes … make them a wee bit more appealing … instead of just on the first day sitting everyone down and trying to make everyone quiet … throwing people in at the deep end … maybe have a wee bit more of a laugh at the start"* [PM07]

Additionally, one suggested that introducing icebreakers might help improve group interaction and raise the young men's energy and motivation:

> *"Could start off with doing an ice breaker, I think that would maybe get people more in the mood … instead of people all coming in pure tired … trooping about man sitting on their seat like melted butter."* [PM06]

Furthermore, one participant suggested that the course should be adapted to the young men's level of ability and engagement:

> *"These guys here they might be over 18, but they're still kind of childish and they've got a childish mind-set, so … they couldn't sit down… they would rather be playing games and stuff like that, so… if they were going to plan to do another course I'd say you need to make it around, not childish, but I'd like … put a bit of kiddy stuff in it to keep them entertained and occupied as well".* [PM08]

5.2.3 Modifications made following course one

The data gathered from course one were analysed and then discussed among myself, both supervisors, and the mindfulness teacher. This led to the following modifications being agreed and implemented:

- Intensity and duration of the practices was reduced

- Fun and interactive practices and games were added
- The content was modified to match the young men's mode of learning, comprehension and attentional abilities i.e. the teacher adapted his language and simplified explanations and learning material.
- More cogent 'scenarios'/'examples' were introduced to explain mindfulness concepts

Additionally, the mindfulness teacher extended the length of the original eight-week format, by adding another two sessions. This decision was based upon his reading of the work previously carried out by Dr Sam Himmelstein (2013) who ran a ten-week course because he found that the young men needed longer exposure in order to benefit from the mindfulness courses he had run in California [232]. The mindfulness teacher felt that this extension would allow more time for the young men to gain a familiarity with the practices and provide more exposure to this particular style of teaching and way of relating to each other.

A request was also made for meditation cushions to be purchased, as the mindfulness teacher felt that the plastic seats were too uncomfortable for the sitting mindfulness practices/discussion, and were serving to increase restlessness among the young men.

Finally, the teacher also queried whether the themes of the course could be '*snappier*', and more '*enticing*' to the young men. In his session notes he made suggestions about introducing the concept of *'neuroplasticity'* and '*character strengths'*, which were related to the concepts of self-mastery and self-efficacy.

5.3 Course Two

Eight young men signed up to attend this course. Three completed the course; three were interviewed, including two 'completers' and one 'non-completer'. As described, the feedback from course one was used to inform the design of the second course.

Table 5.2 provides an overview of the changes incorporated.

Table 5.2 Overview of the components included in course two

Educational component	Core components (duration)	Activities and exercises
Followed similar structure outlined in Course 1 **Addition:** ➢ **Neuroplasticity; training the mind** ➢ **Character Strengths; sense of mastery and efficacy** ➢ **Materials used were further refined to be more suitable to participants attentional and cognitive levels**	**Body scan (progressing from 10-30mins; delivered in all sessions)** **Sitting Practice (ranging from 2 -10 mins; delivered in all sessions)** **Movement (10 mins; delivered during session 6 and 7)**	**Activities/topics added:** ➢ **Icebreakers** ➢ **Fun activities were introduced such as the drumming exercise** ➢ **Inspirational figures; Whom do you admire and why?**

5.3.1 Overview of course two

During this second course, the young men were seen, by the mindfulness teacher, to be restless, disengaged and '*out of sync'* with each other, and were described as frequently disrupting the '*flow*' of the course. This proved to be challenging for the mindfulness teacher, as it was different from his usual teaching experience and more specifically, in contrast to the first group:

> *"... want to mess around a bit more than the previous group. Of course, this is the nature of this work and I need to learn better how to deal with and work with these young men".* [Mindfulness teacher – Session notes]

In response to the disruptive behaviour, the importance of structure and establishing group boundaries quickly became apparent to him:

> *"It seems that more boundaries and discipline would have worked better because the YOs [young offenders] were quite wild ..."* [Mindfulness teacher – Interview data]

As in the previous course, there was a common struggle amongst the young men with maintaining stillness; in some cases due to physical discomfort in the practices. For

example, one young man apologised to the teacher for moving about during the body scan:

> *"He apologised to me… he had a sore back because he had been stabbed in the back previously and so his spine was sore"* [Mindfulness teacher – Session notes]

The teacher commented that he was finding it difficult to cater for the range of attentional abilities that presented in the group sessions:

> *"The YO [young offender] with the attentional difficulties again found it difficult to tune into the story. It lasts about 6-7 minutes. This is a difficult challenge - differentiating between those YOs that can engage for longer periods and those that struggle to focus on any given task for more than 10 minutes".* [Mindfulness teacher – Interview data]

During this course the body scan practice was purposely graded, beginning with a 10-minute low intensity practice, building up to a more intense 30-minute period of meditation. The mindfulness teacher based his decision i.e. whether to increase practice duration (or not) on the group's responsivity and levels of engagement on the day.

Shorter, but more frequent sitting practices were introduced during this course, decisions regarding practice length being based on the groups presenting demeanour. For example if the mindfulness teacher perceived the young men to be restless, bored or tired he would introduce more engaging and fun activities, interspersed with shorter meditation practices. As in Course one short mindful movement practices were delivered during two of the ten sessions, namely session six and seven.

5.3.2 Experiences of course two

Interestingly, during the semi-structured interviews with the young men taking part in course two (n=3), no suggestions were made about how the course could be improved. Surprisingly, in a mismatch between the experiences of the mindfulness teacher, the general consensus among the young men was that the overall programme

had worked well. One young man, when asked specifically about the practices, said, "*Aye, they were good, they were taught well*" [PM11].

Following course two, both supervisors, the mindfulness teacher and myself reflected on possible ways to bring '*freshness*' to the young men's learning experience, as a means of attracting their interest and attention. The mindfulness teacher decided to integrate some of the learning tools he was accustomed to using when teaching mindfulness to school children. Earlier in the study, he had felt reservations about introducing these tools, as he did not wish to '*patronise*' the young men. However, based on his experience of delivering two courses he decided to introduce a couple of the activities that he felt would be relevant such as the 'push hands exercise', a kinesthetic exercise where participants are asked to push a partners hands and notice resistance. The activities introduced were more practical and experiential; being less 'cognitive' and 'abstract'. A list of these activities is provided in Appendix 10.

The mindfulness teacher felt that the low attendance on this course, along with his still being quite new to this context, and the disinterested attitudes of the young men who had attended, together contributed to the group unfolding in a less than desirable way:

> *"My sense is that if any three of these things were improved (attendance, more interested and willing group members, and my skill as a teacher with these young men) the outcomes would be enhanced. However, with all three combining, it has been difficult."* [Mindfulness teacher – Interview data]

5.3.3 Modifications made following course two

After the data from course two had been analysed and the findings discussed with the mindfulness teacher the following modifications were made:

- Still shorter activities and exercises
- Keeping discussion points brief
- Trying more '*imaginative*' ways of working with the young men i.e. using more experiential activities to teach about mindfulness concepts.

The teacher also wished to focus specifically on three areas:

1. Cultivating '*intrinsic motivation and interest'* by trying to make the practices relevant and of interest to the young men.
2. Establishing '*group agreements'*
3. Adopting a flexible approach, whilst maintaining structure and boundaries

The expectation was that establishing group agreements would provide a common standard to maintain i.e. make explicit the type of behaviour that was required, to encourage personal responsibility in contributing to optimal functioning of the group so that everyone could get the most from taking part. The mindfulness teacher also felt this would give him more authority, especially at times when group members were being disruptive:

> *"Taking time to establish commonly agreed upon guidelines would give me the legitimacy to intervene during times of conflict/aggression amongst the participants."* [Mindfulness teacher – Interview data]

5.4 Course Three

Nine young men signed up to attend this course. Four completed the course; five were interviewed, including three 'completers' and two 'non-completers' (one of whom had been asked, by the mindfulness teacher, to leave the course; PM22). Data derived from the previous two courses were used to inform the design of the third course.

Table 5.3 provides an overview of the session plan followed for course three.

Table 5.3 Overview of the components included in course Three

Educational component	Core components (duration)	Activities and exercises
➢ **Followed similar structure outlined in Course 1** ➢ ***Empowerment*; what does personal power or inner power mean?**	➢ **Body scan (progressing from 15-30mins; delivered in all sessions)** ➢ **Sitting Practice (ranging from 3 - 8 mins; delivered in all sessions)** ➢ **Movement (10 mins; delivered during session 4 and 9)**	**Same as Course 2, with the addition of:** ➢ **Working guidelines and group agreements** ➢ **Engaging activities such as; Badge (make me annoyed); Push hands exercise** ➢ **Games such as hangman**

5.4.1 Overview of course three

This group seemed to be made up of young men with very different personalities, all of whom, according to the mindfulness teacher, were competing for attention:

> *"There was a lot of machismo and mickey-taking at the start… any talk of the mind, any talk of the brain was all greeted with hysteria [laughter]"*
> [Mindfulness teacher – Session notes]

The teacher described two individuals as always *'acting the clown'* and being disruptive, whilst another young man was '*resistant*', refusing to engage with the practices or take part in-group activities; he left after session three. Another two young men were described as being '*visibly agitated and at times angry'*. A further two came across as '*withdrawn and reserved*'. During session two, the mindfulness teacher made reference to the volatile nature of one of the participants:

> *"He had divulged earlier that he feels ready to 'burst and smash anybody at any time'. He said that if somebody 'threw a cup' at him right in this moment he would 'batter them'"* [Mindfulness teacher – Session notes]

Later in the session, this same young man had a dispute with one of the HMYOI officers:

> *"This kick-started a verbal shouting match between the officer and [Name]… This continued to escalate until the officer told [NAME] he wasn't going to his work-party but instead was going to his cell. [Name] said he wasn't going anywhere and challenged the officer to try and move him. Three more officers entered the room and a manager. Eventually [Name] got up and left the room - I thought he was going to punch the officer."* [Mindfulness teacher – Session notes]

Mental health issues were once more commonly observed during this course. In his notes the teacher wrote the following:

> *"He seemed to describe symptoms of schizophrenia (though of course, I am not qualified to diagnose). He said he sometimes heard his mum talking to him like she was in the room and he had had enough of it. He couldn't handle it anymore. He also said he couldn't control his anger. He was ready to explode at any moment"* [Mindfulness teacher – Session notes]

Angry outbursts seemed to be a frequent occurrence within this group, with the young men acting-out frustrations on each other, refusing to participate with the mindfulness practices, or shouting at peers passing-by outside of the room. The young men spoke about this in the interviews, for example:

> "*Aye it was just hostile man for the first couple of weeks because all of us were just like that not sure about each other with our eyes closed and all that".* [PM23]

This distrust and suspicion was also perceived by the teacher who commented:

> *"To begin with they were quite defensive … just kind of like checking me out, like do I trust this guy"* [Mindfulness teacher – Session notes]

Additionally, the teacher recorded numerous episodes where the young men were acting inappropriately, frequently using sexual innuendo:

> *"[Participant] was doing all these kind of sexual movements, sexual thrusting and all this kind of stuff, trying to distract the other guys"* [Mindfulness teacher – Session notes]

During session nine the teacher noted how the young men became unruly, difficult to manage and completely disengaged with the content of the group:

> *"Sometimes I find with these guys that their attention span just bottoms out and then towards the end of the session they just don't have any energy or focus left to engage and so the session became quite wild and I didn't see the value in pushing it"* [Mindfulness teacher – Session notes]

In his notes, the mindfulness teacher made reference to the young men initiating a conversation around violence. He reported the following:

> *"… started a bit of talk around violence … seeing it as something funny, talking about different weapons you can use and different ways you can hurt people … kind of a warped sense of masculinity. So that was dispiriting. I felt like the session went so far off the rails from where I was wanting it to go, but I just didn't see any merit in trying to pull them into another space"*
> [Mindfulness teacher – Session notes]

The mindfulness teacher also described having the impression that the young men were not completing their home practices from the course, as they were not filling in and returning forms provided to help them monitor their mood, thoughts and behaviours on a daily basis. He highlighted in his notes:

> *"I found after a while that the boys didn't use the sheets and didn't like them.*
> [Mindfulness teacher – Session notes]

It was therefore decided to remove this component from the course altogether. Instead, 'homework' assignments focused on simply practicing the mindfulness techniques from the session and/or listening to the CD provided. However, the mindfulness teacher was not convinced that they were managing to do this either:

> *"So the homework mostly consisted of listening to guided practices on the CD. Body scan and breathing - no mindful movement. However, I doubt the boys practised much at all in their cells. Just from the feedback I got."*
> [Mindfulness teacher – Interview data]

Two of the core mindfulness components i.e. body scan and breathing practice were delivered throughout all sessions. However, based upon the mindfulness teacher's observations of how the young men were findings these new techniques, the sitting practices were further shortened, ranging from 3 to 8 minutes and being delivered at more frequent intervals throughout sessions. Short mindful movement practices were delivered twice, during session four and nine.

5.4.2 Experiences of course three

Similar to previous comments, two of the five young men interviewed drew attention to the '*boring*' aspect of the practices, attributing this factor to influencing other young men dropping out, *"The first couple of weeks it is boring … asked to hold your breath … make it more exciting so people want to come back"* [PM19]

One young man who did not complete the course due to other work commitments commented that he thought there was a resistance to meditation; hindering willingness to attend the course:

> *"I think a lot of people would just say 'it's a lot of shite' … it's just an attitude in here you know what I mean, in other places you might be alright it's just because this is a prison, you know what I mean, it's just it's a difficult place … people are very cold-minded"* [PM21]

Another young man suggested using music as a means of enhancing the course:

> *"Maybe use music … I told him it would be better with a guitar but, because I play guitar as well … that would maybe have been better but obviously it would be different form of relaxing … if you play music it relaxes you, it focuses your mind as well"* [PM23]

One young man suggested distributing flyers or arranging information sessions in the Halls, so that the young men could decide for themselves if they thought the course was of relevance to them

5.4.3 Modifications made following course three

When reflecting on the three completed courses, the mindfulness teacher noted that the first two contained too much space and periods of silence, which he thought resulted in the young men disengaging. He also questioned whether the young men actually understood what mindfulness was about, both conceptually and experientially. In light of this, he deemed it important to bring attention to the following key principles underlying mindfulness:

- Establishing a purpose and cultivating a desire to practise
- Developing attentional capacities, by continuously reminding participants to notice the '*wandering mind'*
- Developing an non-judgmental attitude

Additionally, the teacher queried whether his own very positive experience of mindfulness biased his teaching; resulting in him 'preaching' to the young men, almost trying to persuade them to stay in the group and commit to the programme, thus losing sight of the actual teaching of techniques.

Initially, and again during this phase of delivery, the mindfulness teacher requested bringing on board a second facilitator for the courses, mainly as a way of enhancing engagement and maintaining focus amongst the group. One option that he favoured was the possibility of involving a past offender (a male adult, no longer incarcerated), with experience in meditation, but there were ethical barriers to this move. Instead the question of additional support was put to the forensic psychology team in HMYOI Polmont, who pledged that someone would be provided. Unfortunately, this did not transpire, apparently due to issues with staffing provision.

At this stage of the study both supervisors and myself were also quite concerned about the consistently low recruitment rates and the low rates of retention and

attendance (this will be detailed further Chapter 6 *Recruitment and Retention*). As a result strategic meetings with Polmont Management Team were set up to understand these problems more clearly. From these discussions, it emerged that some young men were being placed on the course, despite being unaware of what it entailed. As a compromise, it was agreed that delivering a taster session prior to the next course commencing might address the problem. In addition, it was decided that certification of attendance would be provided to those young men who completed the course (i.e. attended five or more sessions).

In response to the continuing comments from the young men about the 'boring' aspect of the course, the mindfulness teacher decided to introduce something he called the '*100 minute challenge'*; where the young men were encouraged to do all of the practices they had been taught in the course, without speaking, for a total of 100 minutes, during the second last session of the programme.

5.5 Course Four

Six young men signed up to attend this course. Five completed the full course; all were interviewed about their experience. Data derived from previous courses were again used to inform the design of the subsequent course.

Table 5.4 provides an overview of the schedule followed for the fourth course.

Table 5.4 Overview of the components included in course four

Educational component	Core components (duration)	Activities and exercises
Followed similar structure outlined in Course 1 **Additional:** ➢ **A taster session was added** ➢ **Emphasise was explicitly placed on the importance of commitment, attendance, and group dynamics**	➢ **Body scan (progressing from 15-30mins; delivered in all sessions)** ➢ **Sitting Practice (5 mins; delivered in all sessions)** ➢ **Movement (6 -15 mins; delivered during session 3, 4, 6,7, 8 and 10)**	**Similar to Course 3 with the addition of:** ➢ **100 minute challenge**

5.5.1 Overview of course four

This group comprised five young men who were in protective custody, a type of imprisonment to protect from harm, either from an outside source or from other prisoners in the institute. This group once more provided numerous challenges for the mindfulness teacher, disputes amongst participants being particularly common. For example, at the start of session eight the mindfulness teacher recorded the following:

> *"… a verbal spat broke out straight away, and I was actually worried that it was going to escalate into physical violence. The guys were calling each other some names, and then getting to the point where they were making threats, so I had to shout. I had to really stand up shouting, tell the guys to calm down and cut it out and stuff. But they were really locked into that mindset, so that was tough … they quietened down, but they were both kind of still fuming."* [Mindfulness teacher – Session notes]

However, despite the intensity of this experience, the mindfulness teacher did manage to use the situation as an opportunity for learning about emotions, perhaps emphasising once again the importance of working flexibly in this difficult environment:

> *" … then we went into a discussion on feelings, and it ended up being around anger, by their choice, not mine. We just explored - how does anger feel in the body, what does the mind do when we get angry, what are the thoughts like, what are the actions like, all this kind of stuff. Just to kind of open the doorway into mindfulness of feelings".* [Mindfulness teacher – Session notes]

Although all five young men taking part completed this course, the mindfulness teacher noted that three mentioned numerous times throughout the programme that they were thinking of dropping out. Thus, the mindfulness teacher spent time at the start of most sessions explaining that such feelings were common and that it was important to give the practices some time to bed-in. However, the mindfulness teacher also described that doing this set a '*negative tone'* for the rest of the session and left him feeling disheartened and apprehensive about the success of future courses.

Concerned that young men in this cohort were not engaging with the course, the mindfulness teacher arranged a meeting with the lead forensic psychologist along with the recruitment manager. One suggested solution that arose from this meeting was to reinforce what had been learnt so far, at the start of each new session, as this would serve to boost the young men's confidence and sense of achievement. Based upon this idea, the mindfulness teacher was inspired to compile a weekly plan of '*graded exposure*' to different mindfulness practices with each week introducing a new topic such as *focus, strength, courage, flexibility, willpower,* and *freedom*. The mindfulness teacher, in collaboration with the forensic psychology team, chose words that they perceived to be a positive way of framing masculinity and was in some way related to sports and physical fitness. It was anticipated that defining each session more clearly in this way, would give the young men an impression that they were progressing in their practices, thus encouraging them to stay with the practices.

The mindfulness teacher noticed how the young men were responding better to the shorter practices. He commented specifically on a participant who struggled continuously with maintaining attention when the body scan was 30 minutes in duration:

> *"So again, that's two occasions where I've heard how [name] has found it really difficult, and there's a sense of him struggling with it, and then the short practice that I've done - he's been more responsive to that, and it's worked well for him."* [Mindfulness teacher – Session notes]

Additionally, the mindfulness teacher noticed that in this course, as in the previous three, the young men seemed to find personal insights from his own practice of mindfulness more helpful than dry, theoretical explanations or abstract stories; for example, he told the young men how he had initially struggled with the practices, and about ways that he had used the mindfulness practices to help him cope with different (sometimes challenging) situations in life.

During course four, because of the challenging personalities encountered, the mindfulness teacher expressed finding the inquiry part of the course quite challenging.

It was during this course that the mindfulness teacher introduced the '*100 minute challenge*' for the first time, where the young men practised mindfulness in silence for 100 minutes.

As in the format of the previous three courses, two of the core mindfulness components i.e. body scan and breathing practice, were delivered during all sessions. As usual the mindfulness teacher made the sitting practices regular and brief i.e. 5 minutes, and continued to extend the young men's exposure to the body scan, progressing from 15 to 30 minutes. During this course mindful movement practices were delivered more often (session three, four, six, seven, eight and ten), as a means to engage actively the young men via body movement.

5.5.2 Experiences of course four

Four of the five young men interviewed reported finding the course content '*good*' and did not have any suggestions for improvements, *"I think it was run well man. I think it was good aye, nothing I could fault on it anyway."* [PM29]

Most young men said they found sitting on the cushions difficult; choosing instead to sit on the plastic chairs for the sitting practice.

Additionally, problems with the course setting were flagged up, by the mindfulness teacher, who expressed concern and dismay about the room in which the course was being delivered:

> *"…in the new Activities area the walls are paper thin so sometimes you're trying to do a body scan practice and you get right next door guys shouting and bawling, and it's almost impossible to practice. I mean, if you had normal adults learning mindfulness they would find it difficult, so trying to get young offenders to do it is just a joke at times, to be honest."* [Mindfulness teacher – Interview data]

He compared this to the conditions that he had experienced during a mindfulness retreat:

> *"... by way of contrast when you go to [Name of retreat centre] ... their kind of model is they have a community of people that are practicing 24 hours a day, seven days a week ... for years ... so there's a real strong energy of practice ... such a nourishment for your practice ... it's incredibly powerful and so this is a completely different model"* [Mindfulness teacher – Interview data]

Problematic distractions to the practices were also raised by some of the young men. One said:

> "*… or when maybe like when the buzzers went off or something like that or if somebody came into the room and your like - oh that's the concentration gone"* [PM30]

A number of young men mentioned being wary of being part of a group. One young man specifically referred to the group format, as well as the particular content of this group being an obstacle:

> *"Because it was in a group I was a bit kind of nervous. I didn't really know what to expect I'm like that - am I going to be constantly slagged [judged] about what I'm in here for or because I want to be in this kind of group."* [PM27]

This participant, who had a history of sexual abuse, also describing his panicked reaction to the preparatory instructions for the body scan exercise, *"... at first I made a joke about it and he [mindfulness teacher] goes right there's a mat lie down, and I'm like what you planning (laughter), and he's like that turn out the lights. I'm like I don't like this he's telling us to lie down and shut our eyes while the lights are out what's he going to (laughter). It was a wee bit kind of like why does he want the lights out… the first time it was a bit nerve wracking and I got a bit paranoid. I'd open up my eyes while [the mindfulness teacher] was talking"* [PM27]

5.5.3 Modifications made following course four

Following analysis of the feedback from course four, the following modifications were made:

- Deliberately, yet carefully, bringing attention to the 'reactive' and 'volatile' behaviours apparent in the sessions
- Generating engaging themes for each session
- Compiling a graded exposure 10-week session plan i.e. each session building upon what was taught in the previous session.
- Using personal experiences to teach and explain mindfulness concepts

5.6 Course five

Eight young men signed up to attend this course. Five completed the course; two of whom agreed to be interviewed, the other three being unavailable on the day (one had being granted early parole). The remaining three, who had been asked to leave the course, were not keen to be interviewed. Data derived from all previous courses were used to inform the design of this course. Changes to this course were initially based on the mindfulness teacher's session notes. Interview data from the young men could not be included at the start of the course, as they had not yet been analysed. The delay in analysis was because course four had not yet finished, and thus the young men had not been interviewed. As it transpired, there was a six-week gap in the delivery of this course (this is discussed further in Chapter 6 *Recruitment and Retention*), between session three and four, mainly due to Christmas holidays and onsite renovations. In addition, as there was just one mindfulness teacher sessions were postponed on account of sick leave and other commitments.

This unplanned intermission between sessions allowed time for interview data to be analysed. Agreed actions from the findings were integrated into the programme schedule ready to be delivered from session four onwards.

Table 5.5 provides an overview of the schedule followed for the fifth course.

Table 5.5 Overview of the components included in course five

Educational component	Core components (duration)	Activities and exercises
Followed similar structure outlined in Course 4, with the following modifications: ➢ Themed each session ➢ Used personal reflections as teaching points	➢ Body scan (progressing from 10-30mins; delivered in all sessions) ➢ Sitting Practice (3-5 mins; delivered in all sessions) ➢ Movement (6 -15 mins; delivered during sessions 4 and 10)	Followed protocol outlined in Course 4 Added: ➢ Explicitly outlined what each session would entail

5.6.1 Overview of course five

This group had eight young men in it, all from the same halls of residence. They were felt, by the mindfulness teacher, to be quite comfortable with one another. This seemed to have both positive and negative implications for the group. On the one hand they were less aggressive towards each other, but on the other hand they were more talkative. The mindfulness teacher commented:

> *"So they're a wild bunch, I've never been in a group of people that just make so much noise, just shout instead of talking … I think the thing is that although these guys are all friends, they don't actually get that much of a chance to hang out together, so they see this as an opportunity to catch up and have a gab with each other"* [Mindfulness teacher – Session notes]

During the first session the mindfulness teacher provided an overview of what they would cover in each of the subsequent sessions. To keep it brief he used one word to represent each session, such as courage, leadership, and strength.

At the end of this session a fight broke out in the activity center and the group and teacher were confined to the room for an additional 30 minutes, while another young man, who was not part of the mindfulness group, was placed in the room for his own safety. This disrupted the cohesion that had been evident in the group. The mindfulness teacher was concerned that it might have a negative impact on the young

men's experience of the session. However, all young men returned to the second session.

These groups were now being held in a section of the prison just renovated. The mindfulness teacher did not perceive this area to be conductive to the practices, describing the room as:

> *'The room sizes are now smaller, the room is overly warm and the lights are really bright, they have this white strip lightening which is not ideal"*
> [Mindfulness teacher – Interview data]

There were constant disruptions throughout this group, the young men becoming distracted, leaving mid session, or refusing to practise. During session four, the mindfulness teacher had to ask three of the young men not to come back to the course because of continued disruptive behaviour.

In this group, the young men were not sure what to make of the mindfulness practices. For example one participant, enquiring about the body scan asked if the teacher was able to feel his foot when he put his mind there, to which another participant responded, *"Well what is the point of that, I don't see how this is going to benefit us"* [Mindfulness Teacher – Session notes]

Once again, the mindfulness teacher noted how quickly the young men would discontinue the practices in the session when they felt they were being observed from others outside of the room.

Again, the mindfulness teacher expressed finding the inquiry process challenging and tiring. When trying to elicit feedback on how the young men had experienced the practice, he described how they would veer off onto tangential issues, or simply just start talking among each other about issues of no relation to the course:

> *"They have no interest in talking about their experience of the practice, it is really quite hard to keep the conversation focused on the practice and what it was like for them … they just talk about whatever comes into their minds and*

its very, very difficult to get them back on track". [Mindfulness teacher – Interview data]

Based on his own observations the mindfulness teacher detected a sense of distrust amongst the participants, which he felt may have contributed to them not revealing much during the inquiry session, *"Within the group there is a need to maintain one's image. The young men clearly do not feel at ease being transparent about their feelings and insecurities the way a more emotionally secure group would…"* [Mindfulness teacher – Interview data]

Mental health issues once again became evident as the course progressed. During the enquiry process, one young man who was diagnosed with depression and had a history of sexual abuse spoke about his experience. His disclosure seemingly affected the whole group. In his notes the mindfulness teacher recorded:

" I don't really want to share what was shared because it's pretty graphic and pretty personal but has to do with abuse … what do you say to that kind of stuff … something pretty horrendous that has happened in his past, and that was difficult in a way. You can't really snap the conversation away from that" [Mindfulness teacher – Session notes]

Like previous courses the core mindfulness components i.e. body scan and breathing practice were delivered in all sessions, varying in length and intensity to match the young men's level of attention and engagement. As presented in Table 5.5 the mindful movement practice was delivered less often during this course, than had been the case in the previous course, due to the young men disengaging when under observations by personnel stationed outside the room or other peers who were in the activity centre at the time.

5.6.2 Experience of course five

When interviewing the young men from this course (n=2), it once more seemed clear that the focus on the meditation practices acted as a deterrent to attendance. One of

the young men suggested that course completers could help change popular opinion of the course and thus make it more acceptable to attend:

> *"They [other young men housed at Polmont] have a perception of it aye … See I can change that by telling them it's different … if one of their pals doing it … then they go aye well he's done it so I'll give it a bash."* [PM35]

Another young man commented that the repetitive nature of the practices made the group difficult at first, however he did not feel this should be altered as over time it became more acceptable to him:

> *"At the start everyone was complaining about it's the same routine over and over again but after you get used to it, - it is relaxing"* [PM37]

When reflecting on this course the mindfulness teacher wondered whether the educational component had been too analytical, and felt that building rapport with the group was more important if he was to gain their trust and sustain their attention:

> *"One thing that I think makes a big difference is that I don't think the guys really respond to logic - I don't think they really respond to stories, or analogies, they respond a little bit to activities, to games, but really the thing that seems to make the bigger difference in terms of their engagement is the relationship; pure and simple."* [Mindfulness teacher – Interview data]

Establishing such rapport may not be easy requiring patience, tolerance and concerted effort on behalf of the teacher:

> *"So it kind of suggested to me that the barriers and the threat systems in these young guys are really, really high – it takes a long time to build these relationships*" [Mindfulness Teacher]

5.6.3 Modifications made following course five

Following data analysis the mindfulness teacher decided to focus specifically on:

- Establishing a clear rationale for the young men as to why mindfulness might be useful for them
- Enhancing the relational component of the course, by actively working on encouraging a sense of cohesion and safety among group members
- Wanting the young men to relax and simply enjoy the session, and not to have too high expectations about taking part or how the course should unfold

5.7 Courses six and seven

By this stage of analysis nothing new was emerging from the interviews, no new themes were apparent, and further coding was no longer feasible. Thus, the data appeared to have reached saturation point and a decision was made to undertake no further interviews.

Therefore, the findings derived from course six and seven were combined and are presented together.

The feedback provided from the previous courses determined the main modifications made, and focused on the refinement of the mindfulness teacher's mode of communication and relational skills.

Table 5.6 provides an overview of the schedule followed for the sixth and seventh course.

Table 5.6 Overview of the components included in courses six and seven

Educational component	Core components (duration)	Activities and exercises
Followed similar structure outlined in Course 5 **Focus:** ➢ **Rationale for practicing (i.e. relevance of mindfulness to the young men)** ➢ **Establishing trust** ➢ **Building therapeutic alliance with the young men**	➢ **Body scan (progressing from 10-20mins; delivered in all sessions)** ➢ **Sitting Practice (3-5 mins; delivered in all sessions)** ➢ **Movement (6 -15 mins; delivered during sessions 4, 8 and 10)**	➢ **Same as Course 5**

5.7.1 Overview of courses six and seven

Attendance for courses six and seven was particularly low i.e. for course six a total of six young men signed up, only two completing the course and for course seven a total of five signed up, dropping to two young men by the end of the programme. Recurrent issues evident in prior courses once more featured and mainly related to how the young men struggled to see the point or engage with the practices. This typically manifested as laughter or disengagement during the sessions. In addition, due to onsite renovations, both courses were held in rooms where the mindfulness teacher had no access to a DVD player, meaning that short teaching clips could not be shown.

The mindfulness teacher once again found it difficult dealing with the personalities of those attending. Sexual innuendo featured frequently in the young men's conversations:

> *"He [course participant] would usually just talk about a lot of graphic sexual thoughts. My feeling was that he was sharing this to subvert the process – to challenge the process – rather than as an honest sharing"* [Mindfulness teacher – Session notes]

On this particular occasion, the mindfulness teacher felt it necessary to ask this young man to leave the group:

> *"Given all this, and due to the other members' opinions, I decided to tell [Name] that he wasn't on the course anymore when he came up in week four. I never like doing this but it's difficult enough to make the group cohere at the best of times and this felt like it was the right thing to do."* [Mindfulness teacher – Session notes]

Two of the core mindfulness components i.e. body scan and breathing practice were delivered in all sessions. For these courses the mindfulness teacher reduced the frequency of the body scan practices, progressing from 10 minutes to 20 minutes,

instead of the usual 30 minutes. This was done to cater for the attentional needs of this particular cohort. Short mindful movement practices were delivered during three of the ten sessions for course six, namely session four, eight and ten. Only two were run for Course seven, as the tenth session was not delivered due to low numbers.

Reflecting on lessons from the previous seven courses, and expressing empathy for the difficult challenges that these young men face, to include being incarcerated, the mindfulness teacher highlighted how conditions offered within a mindfulness setting might have an important role in alleviating such stress:

> *" Like one of the things is fear, that can be a big thing for these guys; that constant state of being paranoid and anxious, which to be fair like no wonder they are in jail with a lot of other young guys … so like coming to an environment that feels quite safe … that they can feel kind of relaxed in … it reduces levels of aggression … the group will tend to chill out a bit … seems that mindfulness really allows them to just calm down a bit, you know"*
> [Mindfulness teacher – Session notes]

5.7.2 Modifications made following courses six and seven

Following analysis of the mindfulness teachers session notes, and discussion between both supervisors, the mindfulness teacher and myself, only minor modifications were suggested to any future courses:

- More sweets and juice as a means to incentivise attendance
- Making sure that there was easy access to computer equipment so that short teaching clips could be shown

5.8 Summary of key modifications made

In an attempt to help facilitate lasting change and respond to the needs of the young men, specific modifications were made to each course throughout the duration of this project. Changes were based on a combination of familiarity with the literature from the scoping review, HMYOI Polmont staff input to help boost relevance, interest,

engagement, and practical course set up, along with scrutiny of qualitative data garnered from interviewing the young men, and review of the session notes compiled by the mindfulness teacher.

The first five courses were evaluated using both data derived from interviewing the young men and that from the teachers session notes, with modification made to the last two courses (Course six and Course seven) being based solely on the teachers session notes.

Changes included introducing taster sessions, in attempt to improve understanding and engagement with the course, lengthening the duration of the course from 8 weeks to 10 weeks, applying session length flexibly, aiming for 90 minutes per session. Regular breaks were introduced in an attempt to sustain attention levels. The mindfulness teacher modified the duration and intensity of the practices in each group to match the level of engagement from the young men, and the educational content was similarly adapted to allow for low literacy levels, diverse learning styles, and low levels of attention. This meant incorporating more fun and games to the course, and the 100-minute 'challenge' introduced as incentive for the young men to test themselves. Mindfulness concepts were reconfigured to be more relevant for the young men i.e. likening them to exercise or sport. Neuroscience concepts were introduced in an attempt to foster interest in the possibility of change. Food was provided to help the young men relax and encourage them to come along to the classes. Although the importance of keeping a diary of personal daily practice was emphasised, none of the participants did so, and this aspect of the course was reconfigured to allow the young men to access the home practice materials and use them flexibly. Thus, 'homework' assignments focused on simply practising the mindfulness techniques from the session and/or listening to the CD provided.

It seems clear, from the delivery of all courses but reinforced here, that a great deal of time was spent by the mindfulness teacher trying to manage problematic behaviour. The strategies used to do this included trying to make the young men feel more 'safe' in the group and during the practices; thus, an attempt was made to let the young men feel free to experience the practices without placing unrealistic or overly stringent expectations upon themselves. This had to be balanced with an attempt to have clear

boundaries whilst in the group, where those displaying problematic or disruptive behaviour would be asked to leave. Table 5.7 provides an outline, and justification, of the adaptations made throughout the delivery of the courses.

Table 5.7 Course adaptations, with justifications

	Change to intervention	Justification
1.	**Inclusion of an Introductory 'Taster' sessions**	To help the young men know what to expect from the course, and to be sure they understood the level of commitment involved.
2.	**Lengthened duration of the course to ten weeks**	Facilitator felt that the young men needed more exposure to mindfulness environment, language, and practices.
3.	**Shortened mindfulness practices (mini-meditations)**	Perception of poor engagement (restlessness, low concentration) associated with more lengthy practices.
4.	**Inclusion of focused exercises to illustrate psychological concepts (such as thought awareness)**	To enhance participant engagement, relieve boredom, improve concentration and uptake of concepts related to mindfulness.
5.	**Tightly structuring intervention sessions**	To maintain boundaries between group members, and to guard against participant distractibility and lack of concentration, as well as establishing group agreements.
6.	**Inclusion of neuropsychological theory and concepts relating to learning and neuroplasticity**	Attempt to inspire interest in the possibility of therapeutic change within each individual.
7.	**Tailoring the content to perceived needs of this particular population (developing 'strength of character', 'doing well')**	MBSR tailored towards 'stress reduction', whereas what matters to the young men is being strong of character and being able to succeed.
8.	**Removal of form-filling in self-study ('home' practice) time**	Poor adherence to this component of the 'home' self-study.
9.	**Pitching the purpose of the course differently to the young men**	Making it more appealing to 'what matters' to the participants.
10.	**Certification upon completion and provision of food during the intervention**	To incentivise attendance.
11.	**Facilitate relaxation via 'banter' and 'jokes' at the start of every session**	To help the young men relax.
12.	**Institution of regular breaks in the mindfulness sessions**	To provide participants with time to digest their experiences and adjust to this 'novel' way of learning.
13.	**Inclusion of '100 minute challenge' where the young men practiced mindfulness in silence for 100 minutes**	Perception that setting a challenge would encourage engagement.

5.9 Optimised intervention

Table 5.8 presents the optimised mindfulness course; comprising of a set of 10 scripted sessions tailored to needs of the young men, with an introductory ‘taster’ session to prepare the young men for the course, and highlighting the commitment required. The optimised course retains the three core mindfulness practices, but the session components have been tailored to be brief and lively, giving only the most relevant details, in a format easy to understand. The course includes a variety of activities, videos and exercises, not typically included in standard MBSR course, in an attempt to make the course more fun, engaging and enjoyable for the young men.

Table 5.8 Optimised version of the mindfulness course

No.	Session Topic	Activities included
Intro	***Introductory Taster Session*;** exploring the value of mindfulness.	Drumming activity; lecture on neuroplasticity. Introduction to the core mindfulness practices
1	***We Can Train The Mind;*** introducing the idea of self-directed neuroplasticity; people can use mindfulness to change how their brain works.	Core mindfulness practices. Three questions icebreaker; video of football skills and neuroplasticity; establishing 'Group Agreements'.
2	***Discovering Attention;*** exploring the wild and unruly mind, which like a puppy needs to be trained.	Core mindfulness practices. Wheel of Awareness; lecture on the monkey mind; thought experiment: 'don't think of a white bear'; video: 'wandering mind'.
3	***Allowing;*** learning how to recognise what's happening without resisting or reacting.	Core mindfulness practices. Cultivating an Intention: What do you want?; pushing hands; Master Oogway Video; holding hands aloft exercise.
4	***Beginner's Mind;*** being curious and open to what is happening, without old interpretations.	Core mindfulness practices. Box of mystery activity; mindful Eating (2-3 min); lecture on the beginner's mind; video of Jonathan (baby who hears for the first time); listening as though for the first time (5-10 min).
5	***Willpower;*** strengthening determination to practice without giving in to reactivity or distraction.	Core mindfulness practices. Activities: 'Holding Ice on the hand' and 'Chill to be still'
6	***Awareness of Thoughts;*** exploring how thoughts lead to emotions, influencing our behaviours and choices.	Core mindfulness practices. Story of John; ABC model of emotion; awareness of breathing, sounds and thoughts (15-20 min).
7	***Awareness of Emotions;*** explore the nature of emotions and the impact they can have on our lives.	Core mindfulness practices. Discussion: Emotions: What effects do they have in the body, mind, and actions? Whom controls you?; Lecture on how emotions are generated; allowing others to push our buttons
8	***Aspirations;*** looking to the future.	Core mindfulness practices. Two stories: Wolf and subway; Reflection: Who do you admire?; Discussion of next week's 100minute challenge
9	***100-Minute Challenge;*** practicing mindfulness for a sustained period of time.	Core mindfulness practices. 10min sitting; 5 min movement; 30 min bodyscan; 10 min walking; 10 min break; 5 min sitting; 15 min walking/movement; 15 min sitting
10	***The power to create;*** celebrate the completion of the course, reflect on what has been learned, and inspiring participants to use what they have learned in the future.	Core mindfulness practices. Consolidating learning; mindfulness of breathing (incl. reflection on a positive future) (15 minutes); discussion on a positive future; writing down 3 life goals; presentation of certificates; Short bodyscan (10 min)

5.10 Summary of findings from the seven courses

5.10.1 Views of the young men

Many of the young men did not engage with the course, and the mindfulness teacher continued to feel unable to meet adequately their needs or able to manage behaviour. Nevertheless, the young men made many suggestions regarding how to improve the course. These included making it more relevant to their needs and interests, and more acceptable to their peers within HMYOI Polmont by having previous course completers act as advocates for the course. From their perspective, common barriers to engagement with the mindfulness course were: (1) finding the practices boring, (2) being restless and finding it difficult to relax, (3) difficulty sustaining attention and, (4) not really seeing the value in doing the practices.

5.10.2 The role of the mindfulness teacher

During the analysis of these seven courses it became clear that working, as a mindfulness teacher, within a YOI is very challenging. The mindfulness teacher in the current study strove to create an empathic, non-judgmental and therapeutic environment, where experiences could be explored, the intention being for each participant to feel supported as they engaged with themselves, and sometimes with unpleasant experiences. As outlined above, this was not particularly easy.

In this type of setting, a mindfulness teacher clearly needs to be experienced, flexible and adaptive in approach, able to work within a set of structured and rigid conditions often less than ideal i.e. noisy rooms, limited teaching equipment and aids. They need also to be able to respond, skilfully and sensitively, to the immediate needs of a challenging group of vulnerable and volatile young men. In this regard, there seems to be a strong case for a minimum of two teachers per session, and possibly for some form of mental health training for the mindfulness teacher.

5.10.3 What remained from standard MBSR at the end of this optimisation process?

Although numerous modifications were made to the mindfulness courses throughout the seven iterations, each course retained the three core mindfulness practices of MBSR i.e. awareness of the breath, the body scan and mindful movement. As detailed above, the

mindfulness teacher modified the duration and intensity of these practices; accommodating for the young men's level of engagement and attention.

5.11 Conclusions

Standard MBSR was initially used, but required substantial modification, and flexibility in delivery, to meet the needs of the young men who took part in each course. Necessary changes included introducing taster sessions, lengthening the course from eight to ten weeks, shortening the meditation practices, adapting the educational materials; structuring the sessions to make them more simple and accessible for diverse learning styles and levels of attention; and minimisation of form filling.

Each delivery of the course retained the three core features of standard mindfulness practice (i.e. awareness of the breath, the body scan, and mindful-movement) delivered in a format appropriate for the population in this setting. This required flexibility and responsiveness to the young men by the mindfulness teacher.

Having outlined the process through which the course underwent optimisation the next chapter will now address objective 2 – *recruitment and retention to the course and study*.

Chapter 6 Recruitment and Retention

This chapter addresses objective 2 - *to determine recruitment and retention to the course and research study*. It outlines the specific strategies employed to recruit and retain participants on the mindfulness course and moves on to describe the actual numbers recruited and retained on the course and number of sessions attended. It also describes retention to the evaluation - that is the number of participants who completed outcome assessments at baseline, post-intervention and at 3-months.

Data were collected in different ways. Numbers approached, numbers recruited and numbers retained were counted. Reasons for the recruitment challenges faced and factors influencing attendance and retention on the courses were gathered in qualitative semi-structured interviews.

6.1 Recruitment strategies

Initial recruitment strategies were based on the advice of the onsite Forensic Psychology Team, reflecting their extensive expertise and experience of recruiting for other programmes offered at the YOI. However, recruitment into the study proved to be challenging from the outset. After the delivery of three courses, with the need to recruit to the fourth looming, a 'crisis' meeting with the forensic psychology team and the governor at HMYOI Polmont, the mindfulness teacher, and a representative from the Scottish Government was held.

The meeting allowed the sometimes conflicting views about the project and responsibility for its delivery to be aired and discussed. The forensic psychology team, who were in charge of recruitment, reported that 'selling' the course to the young men was proving to be difficult and that they had exhausted current avenues. They suggested broadening the eligibility criteria to include sex offenders and younger participants aged 16-17 years (an age group they had initially advised not to include). There was detailed discussion about why it was so hard to recruit and it emerged that neither staff nor potential participants knew enough about the programme really to encourage attendance.

Following the meeting it was agreed that:

- Ethical and time constraints prohibited broadening out the eligibility criteria, and these were not changed

- Recruitment would be expanded to include remand prisoners (but only those remand prisoners who were known to be in custody for the duration of the whole programme), and to include approaching young men who were long-term residents who otherwise would have no reason to have contact with the psychology department

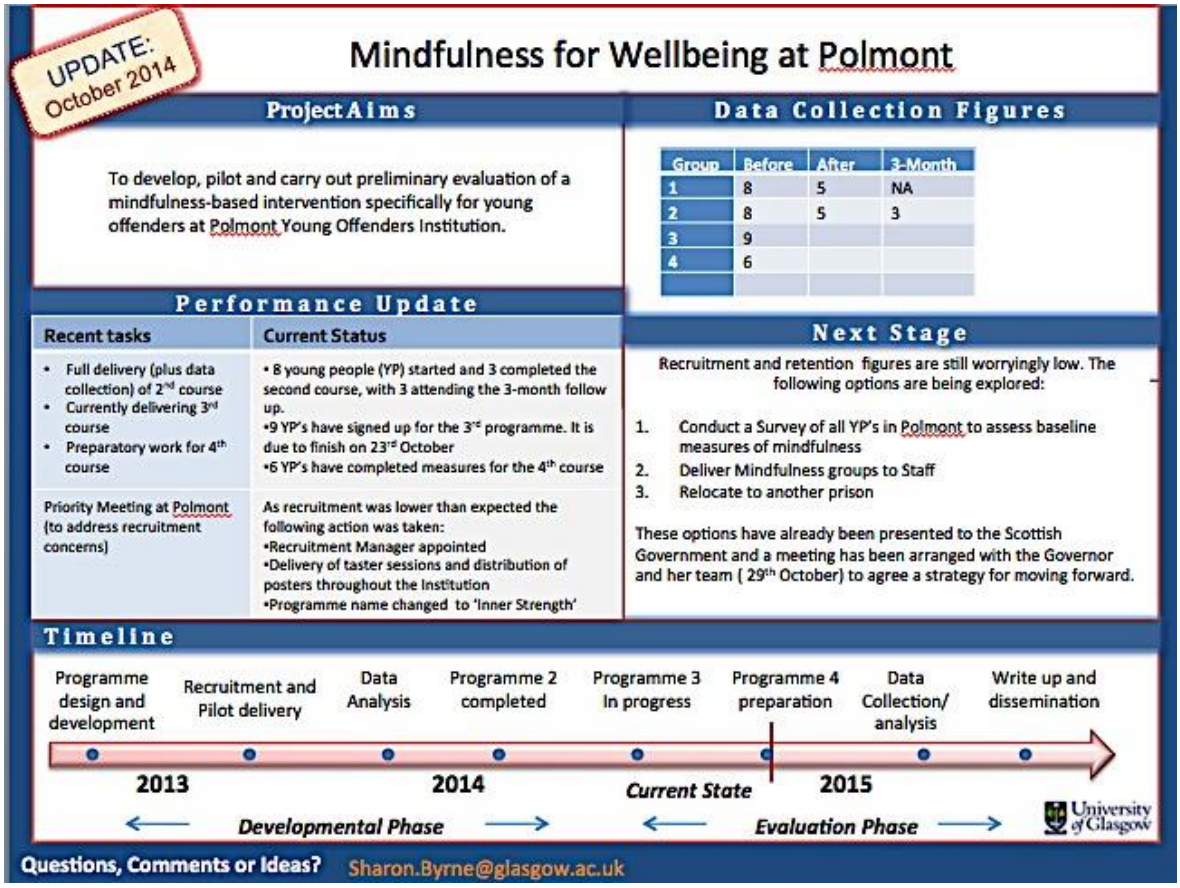
- 'Taster' sessions would be introduced

- The forensic psychology team would identify and appoint an onsite champion for the course, a young man who had completed the course and could speak to the others about how he had found it. However, in actuality this did not happen.

It was also apparent that more frequent and open communication and feedback between research and forensic psychology teams would be necessary as well as effort to widen understanding of the programme amongst other members of staff. For this purpose 'flash reports' were used as a means of keeping everyone informed and up to date (Figure 6.1)

They were sent quarterly, by email, to all staff members who had expressed any interest in the project.

Figure 6.1 Example of a flash report

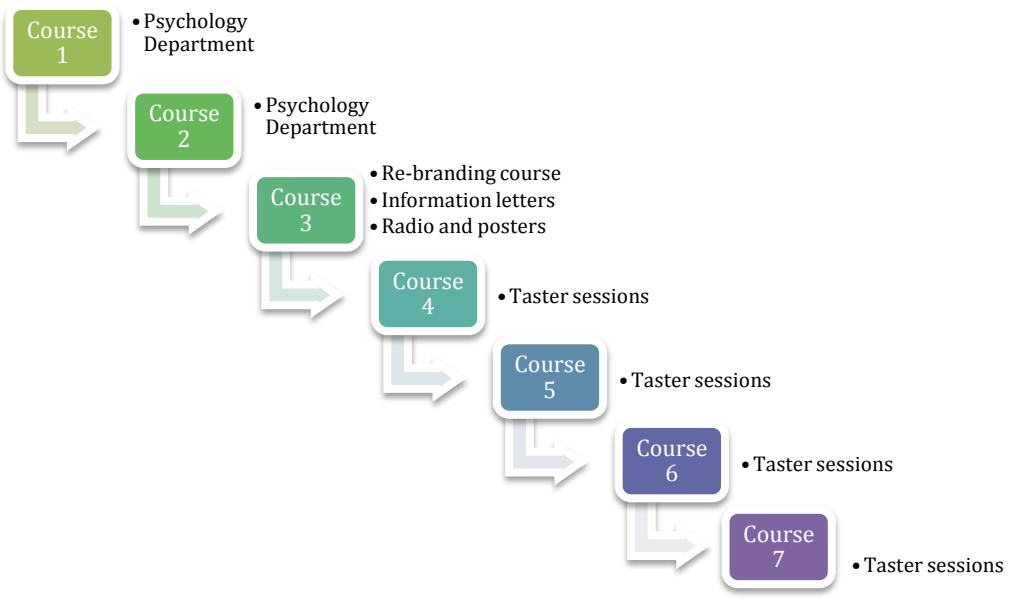


YP = young person

Figure 6.2 summarises the strategies used over the life of the project. Each strategy had its own benefits and drawbacks. For example, direct approaches (i.e. face- to- face contact with potential participants) involved time and resources to identify, set up meetings and establish rapport with potential participants but ensured that all participants were well informed of the study. Indirect recruitment strategies (i.e. recruitment flyers and study 'opt in' letters) meant that the young men needed to take the initiative to make contact with the recruitment manager after being provided with minimal information as to what the course involved. It was, however, less demanding on staff time and resources.

For the first and second course, an appointed recruitment manager from the psychology team approached young men directly. This involved selecting individuals based on the study inclusion criteria and then meeting with the young men on a one to one basis to inform them of the study and to ascertain interest.

Figure 6.2 Recruitment pathways



For course three, 102 letters were distributed to young men in the YOI in their individual cells, with an option to 'opt-in' by returning a notice of interest to the desk officer. The recruitment manager would subsequently follow this up. The letters highlighted potential benefits from taking part including stress reduction and anger management (see Appendix 13). This coincided with a 're-branding' of the course, where '*mindfulness for wellbeing*' was re-named as '*inner strength programme*' (see Appendix 14). Posters with this new name were then displayed on notice boards in communal areas such as the dining hall and the gym. At this stage an extended recruitment strategy also included advertising the course via the prison radio (See Appendix 15 for an overview of the script).

From course four onwards, recruitment took place exclusively in taster sessions that were organised by the recruitment manager and delivered by the mindfulness teacher. Appendix 16 details what was covered during these sessions. In brief, taster sessions were used to:

- Explain the rationale for practising mindfulness, placing particular emphasis on its relevance to the young men taking part;

- Establish realistic expectations and achievable goals, in particular to inform potential participants that initial experiences of the practice might be challenging and forewarn them of the possibility the difficult and distressing emotions might arise;

- Provide some information and experiential examples as to how these strategies might help alleviate such difficulties;

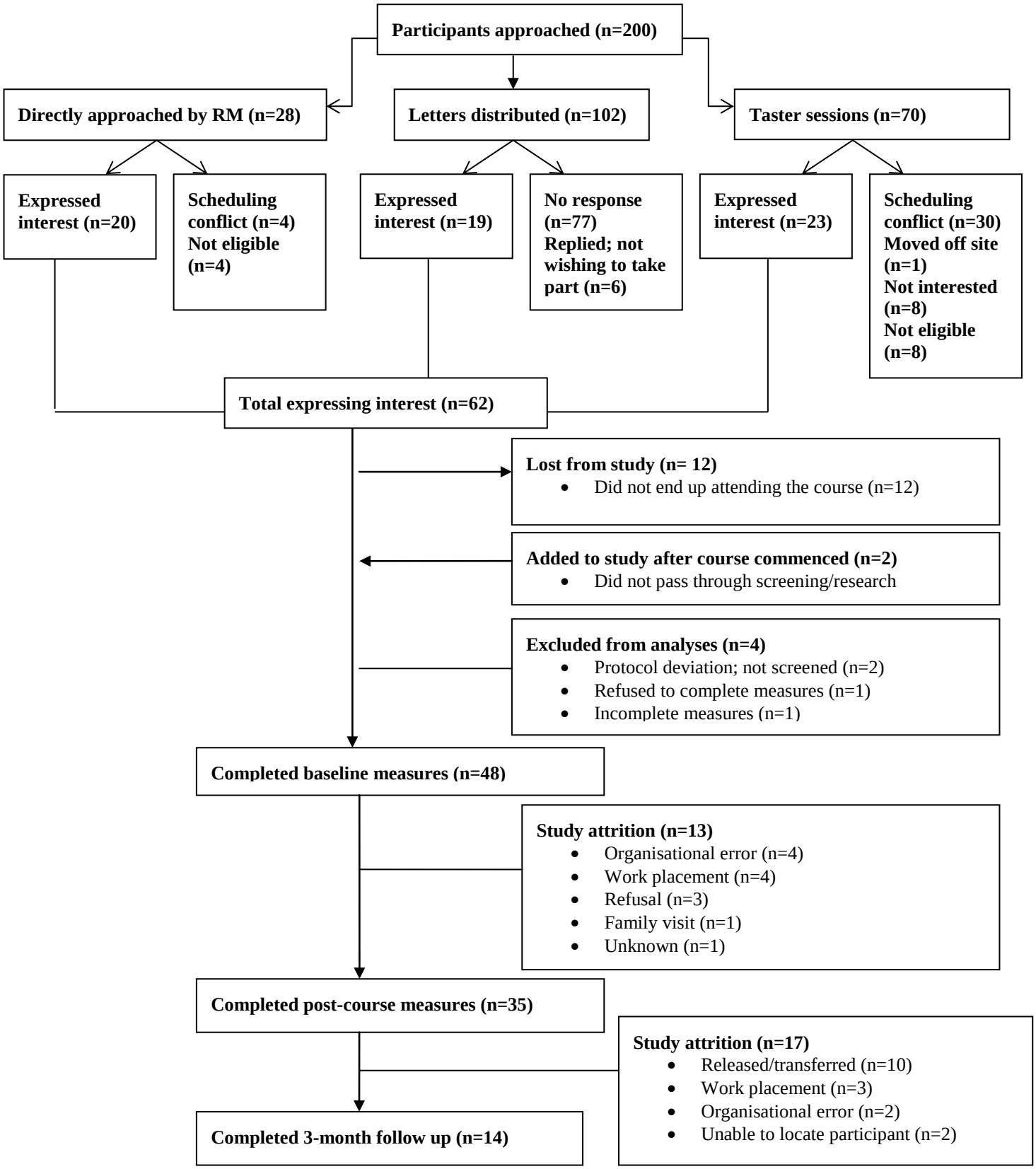
- Emphasise the active participatory role required for the practices to be effective, in particular that participants would not be passive recipients and genuine commitment and perseverance with the practice would be required.

It was anticipated that these sessions would enhance motivation and increase persistence when difficult or challenging experiences arose. It was also expected that taster sessions would improve retention on the course i.e. if the young men knew what to expect they might be less likely to drop out in the face of adversity or difficulty.

6.2 Recruitment and retention on the course

The flow of participants through the study is outlined in figure 6.3.

Figure 6.3 Flowchart of participants through study



Irrespective of what recruitment strategies were used, as we have seen, it proved very difficult to attract the young men. In total, 200 were approached to take part in the study; 95 (47%) declined to take part, 34 (17%) were unable to commit due to scheduling conflicts (the course clashed with other programmes that they young men wished to attend), eight (4%) did not meet eligibility criteria due to a diagnosis of schizophrenia (n=1), a traumatic brain injury (n=1), being too young (n=2), classified as a sex offender (n=4) and one young man (1%) was transferred to another institute (Figure 6.3 above).

Sixty two (31%) of the young men expressed an interest in taking part. Despite an initial expression of interest, 12 (6%) of participants were lost from the study for unknown reasons, coinciding with a changeover in recruitment managers; where the individual taking on the role could not identify or locate six of the young men that had previously been approached. This left a total of 50 potential participants. Subsequently, two young men were added to course number five without having passed through the prerequisite screening process.

From the total number of individuals approached, 52 (26%) of the young men started one of the seven mindfulness courses, and 25 (12%) completed the full course (Table 6.1).

Completion was defined as attending at least 50% of the course sessions (a definition used in other mindfulness studies) [233, 234].

Table 6.1 Course recruitment and retention figures

Course	Recruitment pathway	Approached	Attended Taster Session	Expressed Interest	Attended 1st session	Completed full course
1	Psychology	16	N/A	11	5	4
2	Psychology	12	N/A	9	5	3
3	Letters sent	102	N/A	19	5	4
4	Taster session	20	TS 1: 6 TS 2: 1	6	5	5
5	Taster session	20	TS 1: 7 TS 2: 6	8	7	5
6	Taster session	20	TS 1: 6 TS 2: 5	4	3	2
7	Taster session	10	TS 1: 10	5	3	2
Total		**200**	**41**	**62**	**33**	**25**

N/A = not applicable. TS = Taster session

It was originally anticipated that ten courses would be run, comprising of ten young men per group; in the event, it was only possible to run seven mindfulness courses, delivered to 52 young men in total.

Of the 52 young men who signed up to take part, 25 (48%) completed the course. Attendance at individual sessions was varied; ten (19%) attended all sessions, 15 (29%) attended six or more sessions, seven (13%) withdrew before completing >50% of sessions required for 'completion' cutoff, 12 (23%) did not attend any sessions, five (10%) were excluded for disruptive behavior, two (4%) left to join a 'work party' and one (2%) was placed in segregation (Table 6.2).

Table 6.2 Overview of the attendance record for each group

Programme No.	Attendance Record	Number
Course 1	DNA	3
(n= 8)	Full Attendance	3
	Attended > 6 sessions	1
	Withdrew	1
Course 2	DNA	2
(n=8)	Full Attendance	1
	Attended > 6 sessions	2
	Withdrew	1
	Joined a work party	2
Course 3	DNA	3
(n=9)	Full Attendance	1
	Attended > 6 sessions	3
	Withdrew	1
	Asked to leave	1
Course 4	DNA	1
(n =6)	Full Attendance	3
	Attended > 6 sessions	2
Course 5	Full Attendance	2
(n=8)	Attended > 6 sessions	3
	Asked to leave	3
Course 6	DNA	3
(n=8)	Attended > 6 sessions	2
	Withdrew	3
Course 7	Attended > 6 sessions	2
(n=5)	Withdrew	1
	Asked to leave	1
	Placed in segregation	1

DNA = did not attend. n=number.

As described in Chapter 5 *Course Development*, disruptions to the weekly mindfulness sessions were common. For example, young men would regularly leave early; on one occasion prison officers stopped a session to search the young men, believing that a knife had been brought in to the class. On this occasion it had and the young man was removed

from the session. Over the full seven courses, the mindfulness teacher asked five young men to leave the course due to their consistently disruptive behaviour. On course number three there were 15 incidents recorded where the young men left the group early, the reasons provided ranging from visiting the library, joining a work party, or simply because they were 'bored'. There was one more serious incident where a young man was acting aggressively towards an officer and was forcibly removed from the class.

Another complicating factor was having only one mindfulness teacher to take the courses. Initially, it had been agreed with HMYOI Polmont that a staff member would be assigned the role of second facilitator. This however did not happen and all courses were delivered by one teacher. Thus annual leave, sick leave, or other commitments disrupted the running of four courses, on one occasion contributing to a six-week gap between sessions. In total, seven sessions within four of the courses were postponed on account of annual leave, sick leave, or other commitments.

There were also numerous onsite organisational disruptions; for example booking errors where the young men were not marked as being on the mindfulness course and thus were not escorted to the actively centre. Such discrepancies resulted in sessions not always being delivered on a weekly basis.

Appendix 16 provides an overview of the programme delivery timeline, including disruptions to delivery experienced.

6.3 Recruitment and retention in the evaluation

Out of the 52 young men who signed up to attend the mindfulness courses, 48 (92%) filled out the baseline outcome measures, and provided demographic and descriptive details. These data are reported in Chapter 7 *Outcome Evaluation*. This meant that data for four participants were not included in the analyses. On two occasions, baseline measures were not completed due to a misunderstanding between the mindfulness teacher and prison staff about the study procedures; this happened where two young men (PM38 & PM39, Course 5) were added to a group without having passed through the prerequisite screening/research process for eligibility. One participant (PM33, Course 5) provided incomplete measures that were populated with drawings and assertions of academic achievements not possible given his age. This participant was later asked to leave the course because of disruptive behaviour. One participant (PM41, Course 6) refused to

complete measures but wished to attend the course; he attended three sessions before dropping out of the programme. Data for these four participants were not included in the analyses.

From the 48 young men who filled out baseline measures, 35 (73%) filled out post-intervention measures immediately following the last session of the course (Table 6.3). Reasons accounting for attrition at this stage were prison staff not having scheduled for the young men to be brought up to the activity centre to complete assessments (n=4; 8%), attending a work placement instead (n=4; 8%), refusal to come to the activity centre (n=3; 7%), and the session clashing with a family visit (n=1; 2%). In one case (2%) the reason for non-attendance was not recorded.

The first mindfulness course (n=9; 19%) did not schedule a three-month follow up as this course was used initially to pilot both the MBSR programme and outcome measures; nor due to time restriction were they collected for groups six or seven (n=13; 27%). Therefore, only 31 individuals had the opportunity to complete three-month follow up measures. At this collection point, 14/31 (45%) of the participants completed outcome measures (Table 6.3). Reasons accounting for attrition were: release/transfer (n=10; 32%), attending work placement (n=3; 9%), not marked on booking form (n=2; 7%), or failure to locate participant (n=2; 7%).

In an effort to increase retention research packs were given to the recruitment manager, who intended to follow-up those young men still on site but who had been unable to attend one of the pre-arranged data collection sessions. In the event, due to other competing job responsibilities, these measures were often not collected. In total, 15 sets of measures were completed in this way.

Table 6.3 Recruitment and retention rates to the evaluation

Course	Expressed Interest	Completed baseline measures	Completed post-course measures	Completed 3-month follow-up measures
1	11	8	5	N/A
2	9	8	5	3
3	19	9	7	3
4	6	6	5	4
5	8	5	5	4
6	4	7	3	N/A
7	5	5	5	N/A
Total	**62**	**48**	**35**	**14**

N/A=Not Applicable.

6.4 Reasons behind recruitment and retention challenges: qualitative findings

Semi-structured interview data from course participants, the mindfulness teacher, the forensic psychology team and prison officers at HMYOI Polmont revealed several reasons that helped explain the consistent difficulties associated with recruiting young men into the study and retaining them on the course.

According to the mindfulness teacher and course participants the mindfulness course was perceived as having a lower 'status' than other courses on offer in the YOI. Other courses had incentives associated with completion - for example, taking part in 'Constructs' was seen as increasing the likelihood of gaining an early release at parole hearings; in other activities remuneration was offered (i.e. the young men receive a wage for certain duties carried out within the YOI). It was also suggested that 'optional' or adjunct courses such as the mindfulness course were often poorly attended in the Institute, not being a prominent feature in the curriculum and therefore unfamiliar or unknown both to staff and to the young men.

Forensic psychologist and prison staff pointed out that young men could choose between a mindfulness course or attending other (more enticing) events held at similar times, for example '*medics against violence'* (a programme where healthcare workers speak about the real dangers associated with violent behaviour; physical (scars and disabilities) and psychological (PTSD); drug education sessions; or literacy support. They felt that these sorts of courses were seen to have immediate relevance to the young men whereas mindfulness did not.

Both prison officers and one trainee forensic psychologist suggested that recruitment associated with the mental-health service was likely to act as a deterrent to young men they described as being *'distrusting of psychologists'*, and that being seen with a psychologist could stigmatise the young man amongst his peers.

The primary concern was the recruitment of participants for the course. However it became clear that equally important was to gain the *'buy in'* from Polmont staff and those involved in the recruitment process. Interviews suggested that the courses were not being taken seriously or adequately promoted by HMYOI Polmont staff. This barrier was evident in the staff's appraisal of the whole process. According to the prison officers and one of the

forensic psychology team, staff had a limited understanding of mindfulness; what it was, its relevance to the young men housed at Polmont; and how exactly it fitted in with the other programmes on offer in HMYOI. One of the forensic psychologists suggested that mindfulness was a *'fad'* and thus had not really stimulated an interest amongst more seasoned members of staff, who felt that it was simply another attempt to identify a '*silver-bullet to cure youth offending*'.

Moreover, the mindfulness course was described by a forensic psychologist as introducing a further layer of unwelcome paperwork for all staff involved in recruitment, organisation and management of the young men attending the groups. He described how *'pressure from above'* to make the study a success factored in to how participants were recruited, in that on some occasions the young men were made to attend *'... sort of like force boys up the road with a kitchen prong ...*'. To complicate this situation further, lack of continuity among the designated recruitment managers (due to staffing changes) created confusion about who had been recruited, and what the course/study was about.

The surroundings in which the mindfulness course was delivered was also seen as an important barrier to recruitment and, in particular, retention. The mindfulness teacher expressed concern that these important issues were being overlooked:

> *"I feel a wee bit slightly up against it, like the environment that we are doing the course in, you wouldn't teach adults in the general public in these environments; in one of the new rooms the walls are so thin you've got people shouting and making wild amounts of noise ... you've got strip lightening ... you've got other guys outside who are looking in ... and we are not allowed to close the blinds for safety, which just made it all quite difficult."* [Mindfulness teacher]

Furthermore, the mindfulness teacher mentioned how the room layout may have impinged upon the young men's willingness to stay on the course:

> *"An interesting thing that I picked up from one of the psychologists was that if you start the groups off in a circle you get a lot of people deselecting; a lot of dropouts because they find it uncomfortable"* [Mindfulness teacher]

There were also problems in the simple organisational delivery of the programme. For example, a number of young men reported not being escorted to the course and on

occasions being placed by staff on other programmes instead of the mindfulness course. One of the forensic psychologists described how organisational and logistical difficulties were a common problem and likely to hamper success by restricting the young men's engagement with the course.

Arranging an ideal time to deliver the programme was challenging. For example the timing of the mindfulness course on Thursday afternoons clashed with family visits and gym sessions, which were particularly important and popular with the young men.

All of the HMYOI staff interviewed expressed some concern about introducing a meditation-based course into the prison setting. They cautioned that the programme was likely to meet with uncertainty and resistance from the young men. For example, a senior forensic psychologist (FP02), who was supportive of the intervention, did also question the suitability of the course in the institute:

> "*I think the population of Polmont is young male, not particularly educated … a predominance of people from socially deprived areas, poor educational attainment, … quite often substance abuse issues, … difficulties in their history with attachment and with trauma … a history of problems with the education system and so consequently they are not what one would consider to be an immediate first hit in relation to introducing a programme of kind of, of meditation and so consequently I think that the young people in Polmont will be, they will regard it as unusual to be invited to participate in a mindfulness type class*" [FP02]

The forensic psychologist's assumptions were correct, in that this reaction from the young men did feature in their interview responses. Reasons for non-attendance at an individual level included - not understanding the purpose of the course, why it was relevant to them, what was expected of them, what benefits, if any, to expect from taking part and what it would contribute to their personal circumstances. This opinion was further reinforced by the mindfulness teacher who queried whether a lack of intrinsic motivation and understanding may have played a significant role in influencing dropout:

> *"it really comes down to these two things; their motivation and engagement and understanding the quality [relevance and importance] of the learning"*[Mindfulness teacher]

For many young men taking part, the perceived focus of the course, having to sit still for prolonged periods (or even briefer periods) was experienced as *'boring'* and *'pointless'*, and *'too hard'*.

It was also commonly noted that the young men are vulnerable to what their peers think and volunteering for mindfulness may not 'look cool'. This was emphasised by one of the young men, who was worried that he might be judged for choosing to attend the mindfulness course:

> *"I didn't really know what to expect - am I going to be constantly slagged [teased] ... because I want to be in this kind of group."* [PM27]

Several young men felt that most of their peers in the institute would not 'get' the rationale for the course, unless it was explained to them and/or 'vouched for' by 'one of their own'. This opinion was reinforced by the prison officers, the forensic psychology staff and the mindfulness teacher, all of whom felt that an onsite champion for mindfulness was required in order to raise the profile of the course, and to communicate its value in a language that made sense to the young men. However, no one was clear as to who could best take on such a role; suggestions included one of the young men, or a member of staff who had earned their trust and respect.

6.5 Conclusions

This chapter has assessed intervention and evaluation feasibility, in terms of recruitment, retention, session attendance of the course and recruitment and retention to the evaluation, using a mixed-methods approach to data collection, analysis and reporting.

In total 200 young men were approached about taking part in a mindfulness-based course. Interest in the course was generally fairly low, with less than a third of those approached (31%; n=62) expressing an interest in signing up.

Of the same pool of young men (n=200) approached to take part in the mindfulness course, 24% (n=52) consented to take part. Non-attendance was commonplace, drop-out rates were high and course completion rates low. Twenty five (48%) young men completed a full course (defined as ≥ 50% attendance); fifteen attended six or more sessions (29%); and ten (19%) completed all of the sessions.

Outcome measure completion was relatively good at post-intervention (73%; n=35/48), but high rates of measure completion were not maintained at three-month follow-up (45%; n=14/31).

Collecting data on recruitment and retention proved to be invaluable in highlighting the potential difficulties that may arise and thus allowing them to be addressed prior to running a definitive RCT. Reasons accounting for low levels of recruitment and retention to the course and study were explored via qualitative interviews with course participants, staff at HMYOI Polmont and the mindfulness teacher. The 'lower status' the course took within the wider HMYOI context, recruitment being associated with mental health services, diverging agendas, institutional and organisational barriers, a lack of understanding of mindfulness and participant's individual characteristics and vulnerability to peer opinion, all may have contributed.

In the face of considerable organisational and attitudinal barriers to recruitment, no single strategy for recruitment was identified as the most successful. Recruitment and retention issues will be discussed more fully in Chapter 9 *Discussion.*

The next chapter presents findings from those young men who took part in the course to address objective 3 - *to investigate the feasibility of data collection and potential effectiveness of the mindfulness-based course assessed by outcome measures.*

Chapter 7 Outcome Evaluation

This chapter addresses objective 3 - *to investigate the feasibility of data collection and possible effectiveness of the mindfulness-based course assessed by outcome measures*. The general methods used to carry out this component of the research are described in Chapter 4 *Methodology and Methods*. This chapter will further address data collection considerations and outcome measures used, before presenting the findings. Fuller interpretation of these findings, strengths and limitations and future recommendations based on these results are covered in Chapter 9 *Discussion*.

7.1 Outcome measurements

7.1.1 Collecting outcome measures

Discussions with the Forensic Psychology team prior to the start of data collection suggested that many potential participants might have literacy problems. The British Psychological Society (BPS) recommends the choice of measures to match the comprehension level of the population completing them, using measures identified as valid and reliable for the target population [210]. Where possible, age-appropriate measures were selected, and the lead forensic psychologist approved all measures before they were administered to the young men.

The forensic psychology team at HMYOI Polmont advised explicit steps to explain to participants the process of data collection and to reassure them that there was no intention of *'getting into their heads'* or *'catching them out'*.

They also stressed the importance of helping participants understand the process of data collection. Every attempt was made to do this. For example, instructions for completing the forms were read aloud by myself, simplifying the language even further (when necessary) and making clear that there was no 'right or wrong' answer. For Likert scales a value was provided for each number. Some versions of the scales note '1' as *'very likely'* and '5' as *'not very likely'*, but do not stipulate what number 2, 3, or 4 represent. In the expectation that the young men might find this type of ambiguity difficult, the forensic psychology team suggested that the researcher should provide clear explanations for each number on the scale.

Form filling was kept to a minimum, with 30 minutes judged to be the maximum for one sitting. It was agreed that the first couple of courses would serve as a 'pilot' for the measures, so that any problems with the scales used could be identified and potentially modified to make their administration more suitable for the young men.

7.1.2 Outcome measures chosen

The full, final questionnaire research pack used is included in Appendix 7. Here a description of each measure included in this study, with justification for its use provided.

Impulsivity

Impulsivity was chosen as an outcome measure because it is known to be a problem for incarcerated young people [235] and associated with the likelihood of future criminal behaviour [236]; hypothetically mindfulness training could lead to improvements in attention regulation and behavioural control [237]. Two measures of impulsivity were included; Teen Conflict Scale [211] (TCS) and Barrett Impulsiveness Scale [212] (BIS-11).

The TCS is a four-item questionnaire designed to measure frequency of impulsive behaviour in the adolescent population [211]. It covers four areas; difficulty sitting still, lack of self-control, acting without thinking and getting into trouble. It scores highly on internal consistency (Cronbach's alpha, $\alpha = .81$) amongst incarcerated young men [184, 185]. Items are scored on a 5-point Likert scale, with higher scores indicating higher levels of impulsiveness. Scores range from 4 to 20.

The BIS-11 is a 30-item questionnaire, designed to measure impulsive personality traits [212] and has been validated in general and clinical populations worldwide [238]. It is the most commonly administered self-report measure for the assessment of impulsivity in both the clinical and research environments [238]; it was recommended for inclusion in this evaluation by the forensic psychology team at HMYOI Polmont.

Barratt (1983) maintains that impulsivity is a multi-faceted construct. This is reflected by the BIS-11 being divided into three second-order factors, which are then further divided into six first-order factors (See Table 7.1) [212]. The three second-order factors distinguish between: attentional impulsivity i.e. inability to focus or concentrate; motor impulsivity i.e. acting without thinking; and non-planning impulsivity i.e. lack of foresight or forethought.

These are further divided into six first-order factors, classified as: attention (ability to focus on the task at hand), cognitive instability (racing or unwanted thoughts), motor impulsivity (acting on the spur of the moment), perseverance (consistency in life actions), self-control (planning and thinking carefully) and cognitive complexity (ability to undertake challenging mental tasks).

Table 7.1 Barratt Impulsiveness Scale 11 – Factor Structure and Scoring

Barratt Impulsiveness Scale 11 – Factor Structure and Scoring			
2nd Order Factor	**1st Order Factor**	**Number of Questions**	**Questions related to each subscale**
Attentional *(Inability to focus or concentrate)*	***Attention***	5	5, 9*, 11, 20*, 28
	Cognitive Instability	3	6, 24, 26
Motor *(Acting without thinking)*	***Motor impulsiveness***	7	2, 3, 4, 17, 19, 22, 25
	Perseverance	4	16, 21, 23, 30*
Non-planning *(Lack of foresight or forethought)*	***Self-Control***	6	1*, 7*, 8*, 12*, 13*, 14
	Cognitive Complexity	5	10*, 15*, 18, 27, 29* *reverse scored questions

An overall score provides an indication of an individual's general level of impulsivity and thus consideration of each sub-scale score is encouraged for accurately classifying the specific type of impulsivity i.e. attentional, motor or non-planning. Following the recommendations of Stanford et al. (2009) this study has represented both the total score and those specific to each individual sub-scale [238].

Each item on the BIS-11 is measured on a 4-point Likert Scale, ranging from rarely/never through to almost always; a neutral response is not provided. A total score of 72 or above denotes high impulsivity, a score between 52 and 71 is considered normative; and a score lower than 52 reflects either an individual who is extremely *'over-controlled'* or who has not completed the measure honestly [238].

Patton et al. (1995) reported good internal consistency coefficients for the BIS-11 total scores for undergraduates (α = .82), psychiatric patients (α = .83), individuals with a substance abuse history (α = .79) and male inmates (α = 0.80) [212]. Aggressive behaviour is correlated significantly and positively with high levels of impulsivity and as a result the BIS-11 has been frequently used in criminal populations. The instrument is described as particularly sensitive to differing levels of aggression; for example, violent offenders score higher on this measure compared to those convicted of non-violent offences [239].

Mental Wellbeing

The General Health Questionnaire (GHQ-12) was chosen since psychological stress has been reported as affecting up to two-thirds of incarcerated young men [47]. This twelve-item self-administrated questionnaire is a screening tool to detect those likely to have or be at risk of developing a psychiatric disorder (non-psychotic) [213, 240], being sensitive to one's inability to carry out normal functions as a result of psychological distress. It has been widely used as an assessment of mental wellbeing, being translated into 38 different languages [240] and is described as suitable for use from adolescence onwards. A systematic review (n= 8 studies) investigating the validity of the GHQ-12 with adolescents, demonstrated its validity with older adolescents (17 + years) [241]. In the adolescent population the GHQ-12 has been used to assess psychological distress in relation to a range of stressors including unemployment/work dissatisfaction [242], bullying [243] and parental loss [244].

The measurement assesses the respondent's current state, determining if it is different from their usual state; this allows detection of short-term changes in mental wellbeing. All items have a 4- point scoring system that ranges from a *'better/healthier than normal*' option, through a *'same as usual'* and a *'worse/more than usual'* to a *'much worse/more than usual'* option. The authors of the GHQ-12 recommend scoring via the binary method, the two least symptomatic answers scoring 0 and the two most symptomatic scoring 1.

Any score exceeding 3 is classified as achieving 'case-ness' i.e. the person completing the measures is deemed to have or be at risk of developing a psychiatric disorder; however, it should be noted that this measure is not generally used for diagnostic or predictive purposes [240]. This measure demonstrates good to excellent internal consistency with Cronbach's alpha ranging from .78 to .95 in various studies and populations [240, 245].

Inner resilience

Sense of coherence is a construct originally proposed by Antonovsky (1987). It represents an inner resilience that is thought to enable an individual to manage stress through identifying and using external and internal resources in a way that promotes effective solution-focused coping and resolves inner tension in a direction that is health promoting [214]. This measure is not designed to assess personality traits, but instead identifies the individual's ability to deal with current life stressors.

The Sense of Coherence scale (SOC) comprises three components: *comprehensibility, meaningfulness and manageability* [214]. Respondents are asked a series of questions that assess attitudes, beliefs and behaviours, in relation to how they comprehend their life (*comprehensibility*), the meaning they attribute to their life (*meaningfulness*), and the degree to which they feel they have a sense of control over their life (*manageability*). Its inclusion was based on the empirical evidence suggesting that young men who engage in criminal activity have a compromised ability to deal with social stressors effectively, incarceration being associated with worse social functioning across life course [157, 185]. Thus, enhancing coping skills and psychological resilience are important considerations for this population [96].

A total score, which can range from 13 (low SOC) to 91 (high SOC), is summed, which necessitates five items being reverse scored. Higher scores are indicative of a person who is more cognitively and emotionally capable of dealing with problems, and more willing to confront difficulties as they arise [246]. A lower score predicts an individual who is less likely to cope. A systematic review incorporating a total of 127 studies, from clinical and non-clinical populations, reported the SOC-13 as having good to excellent internal consistency (Cronbach's alphas ranging from .70 to .92)[247].

Mindfulness

Two measures of mindfulness were included in this analysis; the Child and Adolescent Mindfulness Measure - CAMM; [216] and the Mindful Attention Awareness Scale - MAAS [215]. Contemporary models for mindfulness strongly emphasise mediating roles of attentional control and enhanced emotional regulation. For the purposes of this study, measures of mindfulness were primarily included as process measures to assess how they correlated with the other quantitative outcomes in this study (impulsivity, mental

wellbeing, inner resilience and emotional regulation) and with the qualitative feedback of the young men taking part in the course.

The CAMM was used because it was specifically designed for use with children and adolescents. This measure is only recently developed; designed to assess mindfulness skills such as present-moment awareness and non-judgmental, non-reactive responses toward ones inner experiences i.e. *"I push away thoughts that I don't like"* [216]. The original version underwent a series of refinements, the final result being a developmentally appropriate single factor ten-item measure [216] that yields a single total score. Total scores are calculated by reverse scoring and summing up all items on the scale. Higher scores correspond to higher levels of mindfulness.

Internal consistency of the ten-item scale is good (Cronbach's alpha, $\alpha = .81$), and scores on the CAMM correlate significantly and positively with adaptive outcomes and processes such as quality of life (QOL) and social skills [216]. Negative correlations have also been shown with maladaptive outcomes and processes such internalising symptoms and externalising behavioural problems. The ten items on the CAMM are rated on a 5-point Likert scale.

A second mindfulness measure was used, the MAAS. This was used because it is more widely used and researched than the CAMM. It is a validated 15-item scale that measures trait mindfulness as a unified construct [215], which in the literature is also referred to as *dispositional* mindfulness or *day-to-day* mindfulness. The MAAS is designed to detect the presence or absence of present-centered attention and awareness of experiences in the present moment. Higher scores are indicative of higher levels of mindfulness. The scale is described by its authors as applicable to persons regardless of their meditation experience, and has been demonstrated to be sensitive to treatment effects and meditation experience, with scores improving after MBSR training [215].

The MAAS has good to excellent internal consistency (Cronbach's alpha ranging from .78 to .92) [248]. MAAS scores are positively correlated with number of years of meditation practice, with scores being significantly higher among expert meditation practitioners in comparison to novice ones [215]. MAAS scores have been correlated positively with adaptive outcomes and processes such as QOL, self-control, optimism, autonomy, openness to experience, internal state awareness, positive affect, life-satisfaction and perceived general well-being [249]. In contrast, MAAS scores correlated negatively with

maladaptive processes and less favourable outcomes, including impulsivity, hostility, anxiety, depression, stress, disturbed mood, neuroticism and rumination [249, 250]. In addition to this, Himelstein et al. (2012) reported a high internal consistency for the MAAS in a study with incarcerated young men ($\alpha = .93$) [184].

Emotional Regulation

Emotion regulation was not included among the outcome measures for the first two iterations of the course. However experience from the first two groups, and increasing awareness of the role of emotion regulation in the proposed mechanisms of action for mindfulness interventions, highlighted its importance. A decision was therefore made to include a measure of emotion regulation from the third course onwards. Though not ideal, this was considered acceptable in the context of a feasibility study.

The construct of emotional regulation depends upon individuals being aware of their emotional state, being able to understand what it means, and recognising that it is amenable to self-directed change [251]. The 36-item Difficulties in Emotional Regulation Scale (DERS) is a self-report questionnaire designed to assess multiple aspects of emotional dysregulation, developed using factor analysis [217]. The items included in the DERS reflect difficulties with: (1) non-acceptance of emotional responses, where six items reflect a tendency to have negative secondary emotional responses to one's negative emotions, or non-accepting reactions to one's distress; (2) difficultly engaging in goal-directed behaviour, where five items reflect difficulties concentrating and accomplishing tasks when experiencing negative emotions; (3) an inability to refrain from impulsive behaviour, where six items reflect difficulties remaining in control of one's behaviour when experiencing negative emotions; (4) lack of awareness and understanding of emotions, where six items reflect the ability to attend to and acknowledge emotions; (5) limited access to emotional regulation strategies perceived as effective, where eight items reflect the belief that there is little that can be done to regulate emotions effectively once upset and finally; (6) lack of emotional clarity, where five items reflect the degree to which the respondent is unclear about the emotion being experienced.

Internal consistency for the DERS is high ($\alpha = .93$), adequate internal consistency also being reported for each subscale ($\alpha > .80$) [217].The measure yields a total score, where higher scores reflect greater difficulties with emotional regulation. Participants indicate on a Likert scale how often the items apply to themselves, responses ranging from 1 to 5,

where 1 is '*almost never'* (0–10%), 2 is '*sometimes'* (11– 35%), 3 is '*about half the time'* (36–65%), 4 is '*most of the time'* (66–90%), and 5 is '*almost always'* (91–100%).

7.1.2.1 Correlations between outcome measures

Measures used in this study assessed similar or closely related constructs. Examination of correlations between baseline scores for these measures allowed the degree of overlap between them to be explored and specifically, whether there was a high degree of 'redundancy'. The working hypothesis was that measures assessing maladaptive outcomes such as impulsivity, psychological distress and emotional dysregulation would correlate positively with each other and negatively with those assessing adaptive outcomes such as inner resilience and mindfulness. It was also hypothesised that instruments measuring the same construct i.e. the BIS-11 and the TCS (both measures of impulsivity), and the CAMM and MAAS (both measures of mindfulness), would show strong correlations. Support for these predictions might inform future outcome measure selection and potentially reduce the number of measures included in future research packs.

The following hypotheses were formulated:

Impulsivity Higher scores on the TCS and BIS-11 indicate higher levels of impulsivity as measured on these instruments. It was anticipated that the two measures would correlate positively with each other, but the likely strength was unclear, as they measure different aspect of impulsivity i.e. the BIS-11 is designed to measure personality/behavioural constructs of impulsivity (trait impulsivity), whilst the TCS measures more state dependent aspects of impulsivity [211, 212, 238].

Numerous studies confirm an association between psychological distress and higher levels of impulsivity [238, 252, 253]. For this reason, a strong and positive correlation was anticipated between baseline impulsivity scores and baseline GHQ-12 scores.

Because impulsivity involves difficulty with regulating and managing emotions, it was also anticipated baseline impulsivity scores would show a strong and positive relationship with the baseline DERS (where higher scores represent greater emotional dysregulation).

As mindfulness (CAAM & MAAS) requires attentional control and emotional and behavioural regulatory skills and as inner resilience (SOC-13) involves effectively

managing and responding to life stresses it was anticipated that these measures at baseline would correlate strongly and negatively with baseline measures of impulsivity.

Mental Wellbeing Higher scores on the GHQ-12 indicate higher levels of psychological distress. It was anticipated that the GHQ-12 would correlate strongly and positively with baseline measures of emotional dysregulation (DERS).

Because the literature suggests that greater mindfulness is associated with better mental health, strong and negative correlations between the baseline GHQ-12 and baseline mindfulness measures (CAAM & MAAS) were predicted [250]. A similar relationship was anticipated for baseline inner resilience (SOC-13) and baseline GHQ-12 scores (i.e. that a strong negative correlation would exist between them).

Emotional Regulation Higher scores on the DERS indicate higher levels of emotional dysregulation. As such it was anticipated that the baseline DERS score would show a strong negative correlation with baseline scores for mindfulness (CAAM & MAAS) which is associated with greater emotional awareness, and baseline scores for inner resilience (SOC-13) which is associated with a greater sense of control.

Inner resilience Higher scores on the SOC-13 are reflective of an individual who is more cognitively and emotionally equipped to deal with life stresses. Because empirical evidence shows that higher levels of mindfulness are associated with better coping, a strong and positive correlation between the baseline SOC-13 score and baseline mindfulness scores (CAMM & MAAS) was predicted [124].

7.2 Results

7.2.1 Participant characteristics

Table 7.2 provides a summary of participants' characteristics at baseline. There were 48 participants at baseline, aged from 18 to 21 years; mean (SD) age was 19.4 (0.9), and 42 (87.5%) described themselves as white Scottish. Most participants were unemployed prior to being incarcerated (n=28; 58.3%), either seeking work (50%) or being unfit to work (8.3%). Thirteen out of the 48 participants (27.1%) were employed either full-time (22.9%) or part-time (4.2%) prior to being incarcerated. Twenty out of the 48 participants (41.7%)

left full time education without having attained a formal qualification; they completed primary school but did not graduate from secondary school.

Sentence length varied from seven months to 264 months; mean (SD) was 52.6 (57.5). The majority of young men were serving short-term sentences i.e. less than four years (n=33; 69%), with fourteen (29%) being classified as long-termers i.e. serving a sentence length of four years or more. Time served before commencing the mindfulness course ranged from two months to 48 months, the mean (SD) duration being 11.6 (10.7). More than half of the young men (n=27; 56.3%) had previously been incarcerated.

The majority of the young men who took part in the study had no previous experience of mindfulness, meditation or yoga (n=39; 81.2%). Twenty-eight (58.3%) of the participants reported that they had not attended any other courses at HMYOI Polmont prior to attending the mindfulness course. The remaining 20 (41.7%) reported attending a variety of other courses within the institute, including 'the Dog's Trust' (a programme where the young man is paired with a dog, taking responsibility for its development and being accountable for its behaviour), the 'Duke of Edinburgh' (a skills based programme, designed to develop self-discipline, self-reliance, collaboration and perseverance), 'Constructs' (a cognitive-behavioural programme focusing primarily on reducing re-offending), and other educational and vocational groups offered at the institute.

Six of the mindfulness courses were attended by young men from the mainstream population (n=41; 85.4%) i.e. not assigned to a specific category of prisoner as opposed to, for example the 'sex-offending' cohort. The remaining group was attended by seven young men (14.6%) who were in protective custody. As described in Chapter 6 *Recruitment and Retention*, the young men who formed this latter group were incarcerated for violent assault, attempted murder or murder.

Table 7.2 Baseline characteristics of the 48 young men taking part

Age Mean(SD)	19.4 (0.9)
Ethnicity:	
White (Scottish)	42 (87.5%)
White (British)	3 (6.3 5%)
White (other)	1 (2.1%)
Black (African)	1 (2.1%)
Black (Caribbean)	1 (2.1%)
Employment Status (prior to incarceration):	
Employed (full time)	11 (22.9%)
Employed (part time)	2 (4.2%)
Unemployed (seeking work)	24 (50%)
Unemployed (unfit to work)	4 (8.3%)
Other	7 (14.6%)
Education level reached:	
Primary School	20 (41.7%)
Secondary School	15 (31.3%)
College	13 (27%)
Sentence Length Mean (SD)*	52.6 (57.5)
Time served prior to attending the mindfulness course Mean (SD)*	11.6 (10.7)
Previously been incarcerated:	
Yes	27 (56.3%)
No	21 (43.7%)
Previous meditation/yoga experience:	
Yes	9 (18.8%)
No	39 (81.2%)
Attended other training programmes at Polmont:	
Yes	20 (41.7%)
No	28 (58.3%)

*This figure represents months SD= Standard deviation

7.2.2 Feasibility of data collection

The aim was to collect outcome measures at baseline, post-intervention and three-months after post-intervention. The first two groups were used to pilot the outcome measures, to identify any practical problems, test the length of the research pack that contained all of the outcome measures, to observe attention levels, and/or identify difficulty with interpreting and comprehending the questions.

The participants (n= 16) showed no major signs of difficulty with completing the questions. Only minor comprehension difficulties were evident. For example participants asked for certain words to be clarified (*'seldom', 'happy go lucky', 'squirm', 'extraneous' and 'frequently'*). On the Sense of Coherence (SOC-11) scale there was some discussion in both groups over question six: *'Doing the things you do every day is: (1) a source of deep*

pleasure and satisfaction – (7) a source of pain and boredom'. Some of the young men pointed out that as they were in prison, separated from their family and friends, without the freedom to choose: their day-to-day activities were therefore not satisfactory, nor pleasurable. However, this feeling was 'context' dependent and was not the case prior to being incarcerated.

Contextual issues were also raised for the CAMM scale, in that the questions were designed for school age respondents i.e. *'At school, I walk from class to class without noticing what I'm doing',* which introduced some confusion for the young men. This confusion was resolved by asking the young men to replace *'school'* with *'institute'* i.e. answering the question in terms of their current setting.

The DERS was not administered to the first two groups, but comments from subsequent groups centred on the repetitive nature of this questionnaire and its length (it comprised 36 questions). The apparent uniformity of questions generated frustration and some of the young men expressed their annoyance at the *'stupidity'* of these questions. For example one question asks: *'When I'm upset, I take time to figure out what I'm really feeling'.* One young man commented *'Of course I know how I am feeling, when I am upset - I feel upset'.* Furthermore, this measure was the last set of questions in the research pack, thus by this time some of the young men were starting to become restless, finding it difficult to maintain concentration.

7.2.3 Readability tests

Retrospective analysis was applied to the research pack, using the Flesch-Kincaid readability test [254]. This test is designed to indicate how easy the language in a document is to understand. Rating is based on the average number of syllables per word and words per sentence. The test is composed of two components; Flesch reading ease and Flesch-Kincaid Grade level. In the Flesch reading ease component, higher scores indicate material that is easier to read [254]. For most standard documents a score 60 or higher is desirable. The Flesch-Kincaid Grade level component provides an assessment of an approximate reading age based on U.S. school grade level. For example a score of 5.0 means that a fifth grader (10-11 year old) can understand the document. As shown in Table 7.3 all of the measures used in the current study were scored at an age appropriate level, a possible exception being the MAAS, which returned a reading level of 16+. Although all of the young men enrolled in this study were over 18 years of age, the

Forensic Psychology team within HMYOI Polmont suggested that the average reading age among incarcerated young men ranges from 9-12 years.

Table 7.3 Readability scores and interpretation

Measure	Flesch Reading ease	Flesch-Kincaird Grade level	Interpretation
TCS	94%	2.3	Very easy to read, aimed at 7-8 year olds
CAMM	86.7%	3.6	Easy to read, aimed at 8-9 year olds
BIS-11	84.4%	4	Easy to read, aimed at 9-10 year olds
SOC-13	80.8%	5.4	Easy to read, aimed at 10 -11 year olds
GHQ-12	75.5%	5.0	Fairly easy to read, aimed at 10-11 year olds
DERS	74.6%	5.3	Fairly easy to read, aimed at 10-11 year olds
MAAS	46.6%	10.3	Difficult, reading age aimed 16+

7.2.4 Test for normality

Test for normality included assessing simple histograms, values of skewness and kurtosis, P-P plots and, the Shapiro-Wilk test. All measures were normally distributed. Data from the histograms, with skewness and kurtosis scores provided underneath, and the P-P plots are provided in Appendix 17a and 17b, respectively. The results generated from the Shapiro-Wilk test are provided below in Table 7.4.

Table 7.4 Results from statistical tests for normality

Measure	Shapiro-Wilk		
	Statistic	df	Sig.
Teen Conflict Survey (TCS)	.97	48	.20
Barratt Impulsivity Scale (BIS-11)	.97	43	.42
Sense of Coherence (SOC-13)	.97	46	.34
General Health Questionnaire (GHQ-12)	.96	48	.06
Child and Adolescent Mindfulness Measure (CAMM)	.98	48	.71
Mindfulness Attention Awareness Scale (MAAS)	.99	48	.94
Difficulty in Emotional Regulation Scale (DERS)*	.96	30	.40

*Sample size is smaller as this measure was delivered to a sub-section of the sample. Df = Degree of freedom. Sig.= Significance

7.2.5 Internal Consistency

To assess the internal consistency of each measure Cronbach's alpha scores were generated for the seven self-reported questionnaires. The results demonstrated good to excellent internal consistency: TCS = .77, BIS-11 = .81, SOC-13 = .75, GHQ-12 = .86, CAMM = .81, MAAS = .92, DERS = .93. Comparisons of these scores with findings from other studies can be seen in Table 7.5 and indicate broad similarity and good agreement across the measures. This suggests that the measures used in the present study are preforming just as reliably as those in the published literature.

Table 7.5 Cronbach's alpha scores in the current study compared with other studies

Self-reported Questionnaires	***Cronbach's α***	
	Present study	Other studies
Teen Conflict Survey (TCS)	.77	.81[a]*
Barrett Impulsivity Scale (BIS-11)	.81	.80[b]*
Attentional	.72	.74[c]
Motor	.64	.59[c]
Non-planning	.70	.72[c]
Sense of Coherence (SOC-12)	.75	.70 to.92[d]
General Health Questionnaire (GHQ-13)	.86	.76 to .95[e]
Child and Adolescent Mindfulness Measure (CAMM)	.81	.80[f]
Mindfulness Awareness and Attention Scale (MAAS)	.92	.93[g]*
Difficulties in Emotion Regulation Scale (DERS)	.93	.93[h]

* Score is based on data from incarcerated populations
[a]Barnert et al. 2014; [b] Patton et al. 1995; [c] Stanford et al. 2009; [d] Eriksson & Lindstro¨m, 2005; [e] Jackson, 2007 [f] Greco et al. 2011; [g] Himelstein, Hastings, Shapiro, & Heery, 2012; [h] Gratz & Roemer, 2004

7.2.6 Correlations between outcome measures

Correlations between all baseline self-report measures can be seen in Table 7.6. The strength of the correlation (r) was determined using Cohen classification of: 'small' (.1 to .29), 'medium' (.3 to .49) and 'large' (.5 to 1.0) [221]. All correlations were in the expected direction, ranging from medium to large in strength, and statistically significant. There were two exceptions – baseline impulsivity as measured by the BIS-11 did not correlate significantly with baseline psychological distress, as measured by the GHQ-12 (r=.22, p=0.15), nor did it correlate significantly with baseline mindfulness, as measured by CAMM (r=-.29, p=0.06). The strength of relationship for both was small.

The strongest relationships evident (which were negative ones) were between baseline inner resilience (SOC-11) and baseline psychological distress (GHQ-12) (r=-.69, p<0.05) and between baseline inner resilience (SOC-11) and baseline difficulties in emotion regulation (DERS) (r=-.69, p<0.05).

Table 7.6 Correlations between baseline scores for outcome measures

Variables	***Self-reported Questionnaires***						
	TCS	*BIS-11*	*SOC-13*	*GHQ-12*	*CAMM*	*MAAS*	*DERS*
Impulsivity (TCS)		.40**	-.52**	.35*	-.52**	-.30*	.62**
Impulsivity (BIS-11)	.40**		-.54**	.22	-.29	-.32*	.40*
Inner resilience (SOC- 13)	-.52**	-.54**		-.69**	.62**	.50**	-.69**
Psychological distress (GHQ-12)	.35*	.22	-.69**		-.53**	-.35*	.67**
Mindfulness (CAMM)	-.52**	-.29	.62**	-.53**		.51**	-.48**
Mindfulness (MAAS)	-.30*	-.32*	.50**	-.35**	.51**		-.50**
Difficulties regulating emotions (DERS)	.62**	.40*	-.69**	.67**	-.48**	-.50**	

**p<0.01 *p<0.05
TCS = Teen conflict survey BIS = Barrett impulsivity scale SOC = Sense of coherence GHQ = General health questionnaire CAMM = Child and adolescent mindfulness measure MAAS= Mindful attention awareness scale

In an attempt to determine whether the TCS (a four- item measure of impulsivity) could replace the BIS-11 (a 30-item measure of impulsivity) correlations were explored.

Table 7.7 below shows the correlations between the TCS and BIS-11, including 1st and 2nd order factors.

The results showed a medium positive association (r=.40, p<0.01). Sub-scale analyses of the BIS-11 revealed that the relationship was strongest between the TCS and the two BIS-11 subscales for 'attentional' impulsivity (r=.48, p<0.01) and 'motor' impulsivity (r=.48, p<0.01). The third subscale, 'non-planning' impulsivity showed a small non-significant association with the TCS (r=.15, p=0.34).

Table 7.7 Correlations between baseline scores for the TCS and BIS-11

Measure	n	Pearson correlation (two-tailed p)
TCS	48	1
BIS Overall	43	.40 (0.00)**
BIS: Attention (2nd Order)	47	.48 (0.00)**
BIS: Attention Impulsiveness	47	.36 (0.02)*
BIS: Cognitive instability	47	.50 (0.00)**
Bis: Motor (2nd Order)	45	.48 (0.00)**
BIS: Motor impulsiveness	45	.45 (0.00)**
BIS: Perseverance	46	.40 (0.00)**
BIS: Nonplanning (2nd Order)	44	.15 (0.34)
BIS: Self-control	45	.24 (0.10)
BIS: Cognitive Complexity	46	.05 (0.73)

TCS : Teen Conflict Survey ; BIS : Barratt Impulsivity Scale
** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed)

Table 7.6 shows correlations between both measures of impulsivity compared with other measures included in the current study. The results showed that at baseline the shorter four- item TCS measure of impulsivity was more strongly and positively associated with baseline emotional dysregulation as measured by the DERS compared to longer 30- item measure baseline BIS-11 (TCS: r=.62, p<0.01; BIS-11: r=.40, p<0.05). A significant and medium relationship was seen between the baseline TCS and psychological distress, as measured by the baseline GHQ-12 (r=.35, p<0.05). In contrast, a small non-significant relationship was seen between the baseline BIS-11 and baseline psychological distress (r=.22, p=0.15). The baseline TCS was also more strongly and negatively associated with mindfulness, as measured by the baseline CAAM (TCS: r=-.52, p<0.01; BIS-11: r=-.29, p=0.06). Both measures showed a similar correlation with baseline mindfulness, using a generic measure (MAAS) (TCS: r=-.30, p<0.05; BIS-11: r=-.32, p=0.05). Both measures showed a significant negative and medium correlation with baseline inner resilience, as measured by the SOC-13 (TCS: r=-.52, p<0.01; BIS-11: r=-.54, p<0.01).

For similar reasons as mentioned above correlations at baseline between the two measures of mindfulness (MAAS and CAMM) were explored. Significant, large and positive associations were found (r=.51, p<0.01) (See Table 7.6).

When the mindfulness measures were compared with other measures included in the current study, the age-appropriate CAMM was more strongly and positively associated at

baseline with inner resilience, as measured by the SOC-13 compared to the less age-appropriate MAAS at baseline (CAMM: r=.62, p<0.01; MAAS: r=.50, p<0.01). The baseline CAMM score was also more strongly and negatively associated with baseline psychological distress, as measured by the GHQ-12 (CAAM: r=-.53, p<0.01; MAAS: r=-.35, p<0.05) and baseline impulsivity, as measured by the TCS (CAAM: r=-.52, p<0.01; MAAS: r=-.29, p=<0.05). As mindfulness involves awareness and acceptance of emotions it was anticipated that this construct would correlate negatively with the baseline DERS. This was the case for both the baseline CAAM (r=-.48, p<0.01) and baseline MAAS scores (r=-.50, p< 0.01).

Table 7.6 demonstrates correlations between both measures of mindfulness compared with other measures included in the current study .

7.2.7 Baseline values of outcome measures

Forty-eight participants enrolled in the study and filled-out baseline measures. Outcome measure completion was good, with the TCS and CAMM achieving 100% completion, the MAAS 98% completion, the SOC-13 96% completion, the GHQ-12 94% completion, and the BIS-11 92% completion. Appendix 18 provides a more detailed record of missing values.

Following course completion, thirty-two participants also completed follow-up measures (referred to as ‘completers’). Only data for the ‘completers’ i.e. those who filled out baseline and follow-up measures were included in the analysis.

Table 7.8 illustrates findings for the 48 participants who filled out baseline measures with the completers. Minimal differences were observed.

As the DERS measure was administered to a subset of study participants (32/48), results are presented at the end of this section, separate from other findings.

Table 7.8 Baseline outcome measures

Measure	All Baselines		Completer Baselines	
	n=48	Mean (SD)	n=32	Mean (SD)
Teen Conflict Survey (TCS)	48	12.2 (3.51)	32	12.4 (3.26)
Barratt Impulsivity Scale (BIS-11)	43	77.0 (10.53)	28	76.7 (9.78)
Attentional	47	19.4 (4.25)	31	19.7 (4.46)
Attention	47	12.2 (2.81)	31	12.3 (3.08)
Cognitive instability	48	7.2 (2.11)	32	7.47 (2.03)
Motor	45	26.7 (4.95)	30	26.7 (4.60)
Motor impulsiveness	45	17.8 (8.85)	30	17.7 (3.36)
Perseverence	46	8.8 (2.29)	31	9.0 (2.21)
Non-planning	44	30.2 (5.16)	29	30.0 (5.25)
Self-control	46	16.8 (3.22)	30	17.0 (3.14)
Cognitive complexity	46	13.1 (2.63)	31	13.3 (2.46)
Sense of Coherence (SOC-13)	46	49.2 (11.83)	31	49.2 (13.03)
Meaningfulness	48	14.8 (4.45)	32	14.9 (4.64)
Comprehensibility	46	17.8 (5.33)	31	17.6 (5.82)
Manageability	47	16.6 (4.5)	32	16.7 (4.46)
General Health Questionnaire (GHQ-12)	45	3.09 (3.17)	29	3.2 (3.10)
Child and Adolescent Mindfulness Measure (CAMM)	48	21.8 (7.85)	32	21.5 (7.93)
Mindfulness Attention Awareness Scale (MAAS)	47	3.4 (1.07)	32	3.66 (0.95)

'Completers' refers to those participants who completed measures at both baseline and post-intervention follow-up time points.

7.2.8 Follow up values of outcome measures

Thirty-five young men (73%) filled out measures immediately post-intervention. Three of the participants had not completed baseline data so their data was not included in the analysis. Analysis was based on the questionnaire data of 32 young men who completed baseline and follow-up questionnaires (66.7%). From these, data completion at follow-up was also good across all six measures, with the TCS, SOC-13 and CAMM achieving 100% completion and the BIS-11, GHQ-12, and MAAS achieved 98% completion.

As highlighted in Chapter 6 *Recruitment and Retention* 3-month follow up measures were collected for a sub-set of participants (mainly due to time restrictions). Therefore only 31 individuals had the opportunity to complete measures at this time point and 14/31 (45.2%) completed them. Because of these low numbers, statistical analyses were done only between baseline and post-intervention follow-up.

Table 7.9 presents the results of comparisons of baseline and post intervention scores, significance and effect sizes. Figure 7.1 illustrates effect sizes using a forest plot.

As mentioned in Chapter 4 *Methodology and Methods* effect sizes for intervention followed the Cohen classification for t-tests; ‘small’ (≥0.2), ‘medium’ (≥0.5) and ‘large’ (≥0.8).

Table 7.9 Mean difference, significance and effect sizes reported on the six measures

Measure	n=32	Baseline Mean (SD)	Post Mean (SD)	Mean Difference	p-value	Effect Size (Cohen's 'd')	95% CI
Teen Conflict Survey (TCS)	32	12.4 (3.26)	10.1 (3.08)	2.34	0.001	0.72	[0.32, 1.11]
Barratt Impulsivity Scale (BIS-11)	28	76.7 (9.78)	71.9 (8.74)	4.79	0.001	0.50	[0.21, 0.76]
Attentional (2nd Order)	31	19.7 (4.46)	17.7 (3.96)	1.97	0.005	0.44	[0.15, 0.73]
Attention	31	12.3 (3.08)	11.3 (2.77)	1.03	0.01	0.33	[0.08, 0.59]
Cognitive instability	32	7.47 (2.03)	6.5 (1.85)	0.94	0.01	0.46	[0.08, 0.84]
Motor (2nd Order)	30	26.7 (4.60)	24.8 (4.17)	1.83	0.04	0.39	[0.02, 0.78]
Motor impulsiveness	30	17.7 (3.36)	16.6 (3.13)	1.10	0.08	0.33	[-0.05, 0.70]
Perseverance	31	9.0 (2.21)	8.3 (1.83)	0.71	0.11	0.32	[-0.08, 0.72]
Non-planning (2nd Order)	29	30.0 (5.25)	28.2 (4.12)	1.87	0.01	0.36	[0.08, 0.63]
Self-control	30	17.0 (3.14)	15.8 (2.51)	1.17	0.01	0.37	[0.08, 0.66]
Cognitive complexity	31	13.3 (2.46)	12.4 (2.37)	0.90	0.04	0.37	[0.01, 0.72]
Sense of Coherence (SOC-13)	31	49.2 (13.03)	52.9 (11.46)	3.68	0.12	0.28	[-0.08, 0.65]
Meaningfulness	32	14.9 (4.64)	16.5 (3.71)	1.63	0.03	0.35	[-0.02, 0.68]
Comprehensibility	31	17.6 (5.82)	19.6 (5.30)	2.03	0.06	0.35	[-0.03, 0.73]
Manageability	32	16.7 (4.46)	16.7 (4.52)	0.03	0.97	0.007	[-0.44, 0.45]
General Health Questionnaire (GHQ-12)	29	3.2 (3.10)	1.7 (2.54)	1.52	0.003	0.50	[0.18, 0.80]
Child and Adolescent Mindfulness Measure (CAMM)	32	21.5 (7.93)	24 (9.42)	2.5	0.03	0.32	[0.03, 0.60]
Mindfulness Attention Awareness Scale (MAAS)	32	3.66 (0.95)	3.92 (1.05)	0.26	0.13	0.27	[-0.08, 0.62]

Shading represents measures showing significance Effect sizes (ES) were calculated using Cohen's'd' formulation i.e. mean difference divided by baseline SD.
TCS and **BIS-11**: Higher scores indicate higher levels of impulsiveness; **SOC-13**: Higher scores indicate higher levels of inner resilience/coping; **GHQ-12**: Higher scores indicate greater psychological distress; **MAAS** and **CAMM**: Higher scores correspond to higher levels of mindfulness

7.2.8.1 **Impulsivity**

Analysis showed a significant pre- post- reduction in impulsivity (p=0.001) as measured by the TCS and BIS-11 (p=0.0.01). Analysis of the three BIS-11 second order factors showed a significant reduction in 'attentional' (p=0.005), 'motor' (p=0.05) and 'non-planning' (p=0.01) impulsiveness. Further analysis of the first order factors in the BIS-11 showed a significant reduction in 'attention' (p=0.01), 'cognitive instability' (p=0.01) 'self-control' (p=0.02) and 'cognitive instability' (p=0.01). No significant differences were noted for two of the first order factors: 'motor impulsiveness' (p=0.08) and 'perseverance' (p=0.11).

Effect sizes are presented in both Table 7.9 above and Figure 7.1 below. Taking part in the mindfulness course was associated with a medium effect size on the TCS (0.72) and BIS-11 (0.50). BIS-11 subscale analysis revealed a small effect on all of the second order factors: 'attentional' (0.44), 'motor' (0.39) and 'non-planning' impulsivity (0.36).

In addition, BIS-11 subscale analysis revealed a small-sized effect on all of the first order factors: 'attention' (0.33), 'cognitive instability' (0.46), 'motor impulsiveness' (0.33), 'perseverance' (0.32), 'self-control' (0.37) and 'cognitive complexity' (0.37).

7.2.8.2 **Mental wellbeing**

Analyses demonstrated a significant pre- post- reduction in the mean scores on the GHQ-12 (p=0.003), with a medium effect size (0.50) (Table 7.9 above and Figure 7.1 below). 'Caseness' reduced from 21/48 (44%) at baseline to 4/31 (13%) post course. From the 29 who completed both baseline and post measures this was a change from 25/29 (86%) to 4/29 (14%) (See Appendix 19).

Three of the participants went from 'non-caseness' at baseline to 'caseness' at immediate post intervention follow-up (See Appendix 19).

7.2.8.3 **Inner resilience**

The overall SOC-13 scores for inner resilience did not show significant improvements from pre- to post-intervention (p=0.12). Further analysis revealed a significant improvement on the 'meaningfulness' subscale (p=0.03), borderline significance on the 'comprehensibility' subscale (p= 0.06) and no significant difference on the 'manageability' subscale (p= 0.97).

Effect sizes are presented in both Table 7.9 above and Figure 7.1 below. Improvements in inner resilience demonstrated a small effect (0.28); the effect being similar on the 'meaningfulness' (0.35) and 'comprehensibility' subscale (0.35) but less marked on the 'manageability' subscale (0.007).

7.2.8.4 **Mindfulness**

There was a significant difference from baseline to post-intervention in self-reported mindfulness on the CAMM outcome measure (p= 0.03). A significant difference was not detected using the MAAS outcome measure (p= 0.13). Small effect sizes were found for both measures of mindfulness: CAMM (0.32) and MAAS (0.27) (Table 7.9 above and Figure 7.1 below).

7.2.9 Cluster effects

Two potential cluster effects required investigation. First, it could be that young men taking part in a single group were more similar to each other than would have been the case if they were allocated at random. This could be because of the route through which they were recruited (for example, the first two groups were selected via the psychology department while the remaining groups were all self-referred). This was investigated using one-way ANOVA to compare means between groups and therefore whether cluster allocation was a potential problem. Baseline variables of age, educational attainment, duration of sentence, length of sentence, and baseline outcome measure scores were included in the one-way ANOVA analyses.

There were no statistically significant difference found between any of the seven groups with respect to age (p=0.82), educational attainment (p=0.74), duration of sentence (0.32), sentence length (p=0.12) and baseline outcome measures; TCS (p=0.06); BIS-11 (p=0.10);

SOC-13 (p=0.41); GHQ-12 (p=0.37); CAMM (P=0.33); MAAS (p=0.65) and DERS (p=0.72)

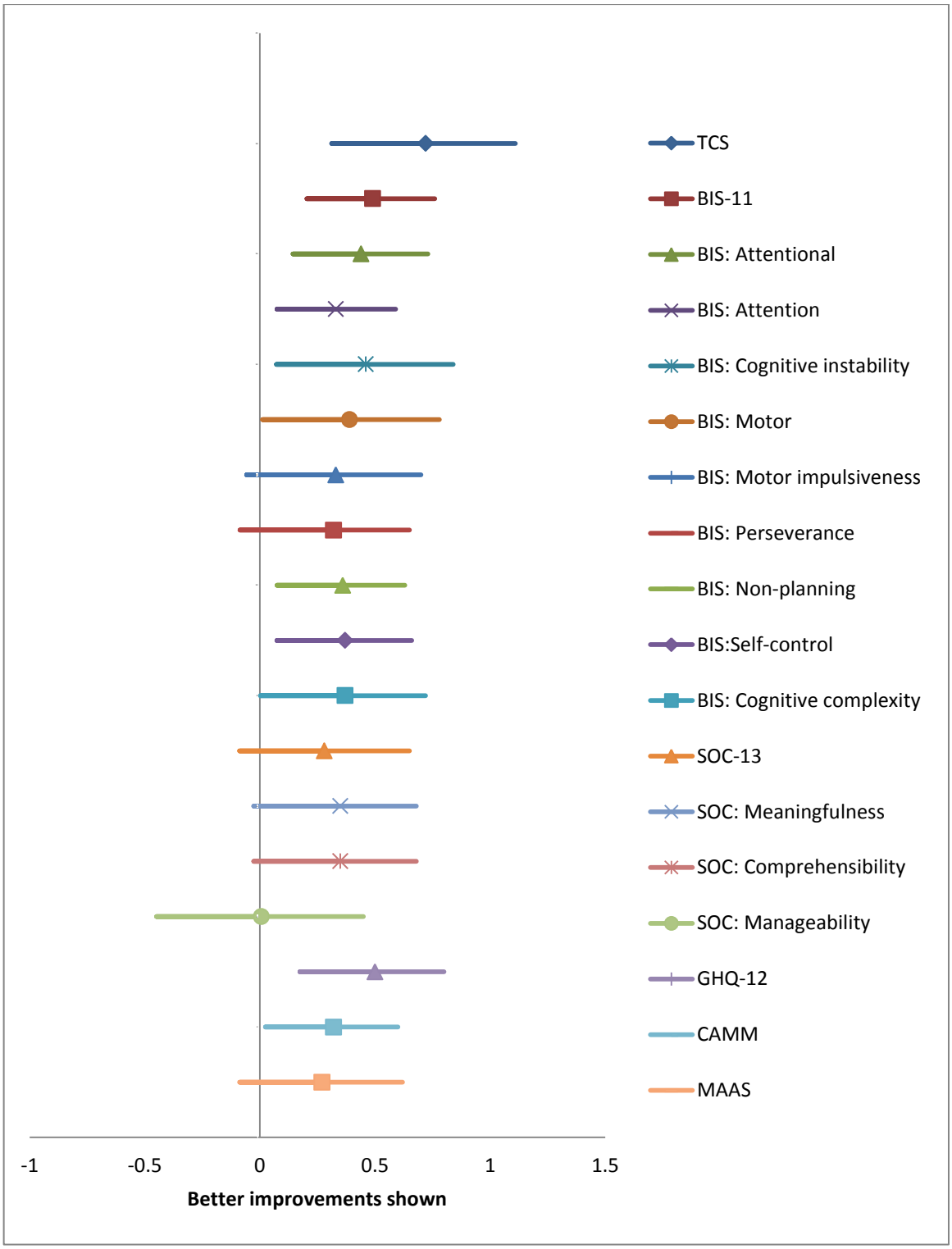
Second, cluster effects could have occurred because the delivery of the course varied (given that it was being developed iteratively), and interactions between young men in each course could also vary. To investigate this, one-way ANOVA was conducted to compare change in scores from baseline to post-course on all measures between groups. There was no statistical between group difference for any of the outcome change scores; TCS (p=0. 60); BIS-11 (p=0.59); SOC-13 (p=0.36); GHQ-12 (p=0.74); CAMM (p=0.63); MAAS (p=0.61) and DERS (p=0.29).

Appendix 20 provides the results generated from SPSS, testing for clustering effects.

7.2.9.1 **Treatment effects**

Although only four of the six measures (TCS, BIS-11, GHQ-12, CAMM) showed statistical significance difference between baseline and post-course follow-up for overall scores, all six measures showed a positive trend for treatment effects from the bespoke mindfulness-based course (see Figure 7.1). There was one exception; ‘manageability’ (a subscale on the SOC-13) did not change from baseline to post intervention.

Figure 7.1 Post intervention treatment effects (and 95% CI) for the mindfulness course



Statistical significance was shown on the TCS, BIS-11, GHQ-12, CAMM and SOC: Meaningfulness.
TCS = Teen conflict survey BIS = Barrett impulsivity scale SOC = Sense of coherence GHQ = General health questionnaire CAMM = Child and adolescent mindfulness measure MAAS= Mindful attention awareness scale

7.2.10 Emotional regulation

As explained in section 7.2.7 thirty-two young men filled out the DERS questionnaire at baseline. Incomplete data on the DERS at baseline was low, achieving a 94% completion rate. At post-intervention completion was 100%.

Following course completion, twenty-two participants also completed follow-up measures (referred to as 'completers'). Only data for the 'completers' i.e. those who filled-out baseline and follow-up measures for the DERS were included in the analysis.

Table 7.10 illustrates findings for the 32 participants who filled out the DERS at baseline with the completers. Minimal differences were observed, thus suggesting the final follow-up group did not have significant sample bias.

Table 7.10 Mean (SD) for DERS outcome scores

Measure	**All Baselines**		**Completers Baselines**	
	n=32	Mean (SD)	n=22	Mean (SD)
Difficulty in Emotional Regulation Scale (DERS)	30	95.3 (24.8)	21	92.2 (25.17)
NAER	31	13.1 (5.40)	22	12.6 (5.65)
DGDB	32	14.4 (5.05)	22	14.0 (5.0)
ICD	31	15.6 (6.33)	21	15.2 (7.10)
LEA	31	19.7 (4.82)	21	19.7 (5.47)
LAERS	30	19.9 (7.98)	21	18.7 (8.04)
LEC	32	12.5 (3.74)	22	12.1 (3.7)

NAER = Non acceptance of emotional responses; **DGDB =** Difficulties in goal directed behavior; **ICD =** Impulse control difficulties; **LEA =** Lack of emotional awareness; **LAERS =** Limited access to emotional regulation strategies; **LEC =** Lack of emotional clarity

No significant improvements were demonstrated on the DERS measure overall (p= 0.09), or any of the six subscales for this measure. The overall effect size for the DERS was 0.32. On the DERS subscales non-significant changes were found with small positive effects on five of the six subscales: non-acceptance of emotional responses (NAER) (0.32); the difficulties in goal directed behaviour (DGDB) (0.20), lack of emotional awareness (LEA) (0.34), limited access to emotional regulation strategies (LAERS) (0.25) and lack of emotional clarity (LEC) (0.22); whilst low effects were seen on impulse control difficulties (ICD) (0.06). The results are presented in Table 7.11

Table 7.11 Pre – post treatment effects, significance and effect sizes reported for the DERS measure

Measure	n=22	Baseline Mean (SD)	Post Mean (SD)	Mean Difference	p-value	Effect Size (Cohen's 'd')	95% CI
Difficulties in Emotional Regulation Scale (DERS)	21	92.2 (25.17)	84.1 (26.5)	8.14	0.09	0.32	[- 0.06, 0.71]
NAER	22	12.6 (5.65)	10.8 (5.42)	1.82	0.08	0.32	[-0.05, 0.69]
DGDB	22	14.0 (5.0)	13.0 (4.76)	1.00	0.26	0.20	[-0.16, 0.56]
ICD	21	15.2 (7.10)	14.8 (6.10)	0.43	0. 73	0.06	[-0.30, 0.42]
LEA	21	19.7 (5.47)	17.8 (5.45)	1.90	0. 12	0.34	[-0.10, 0.79]
LAERS	21	18.7 (8.04)	16.62 (7.66)	2.04	0. 21	0.25	[-0.15, 0.66]
LEC	22	12.1 (3.7)	11.3 (4.75)	0.82	0.39	0.22	[-0.30, 0.74]

NAER = Non acceptance of emotional responses; **DGDB** = Difficulties in goal directed behavior; **ICD** = Impulse control difficulties; **LEA** = Lack of emotional awareness; **LAERS** = Limited access to emotional regulation strategies; **LEC** = Lack of emotional clarity
Effect sizes (ES) were calculated using cohen's 'd' formulation i.e. mean difference divided by baseline SD.
Lower scores indicate greater ability to regulate emotions

7.2.11 Factors associated with change scores

As already mentioned in Chapter 4 *Methodology and Methods*, multiple linear regressions were undertaken to identify if any baseline factors were independently associated with better outcomes (measured by change score) (See Table 7.12). Based on the exploratory univariate correlational analyses of association between variables, which measured factors that could potentially influence change in outcome measures (age, educational attainment, baseline scores etc), and hypothesising what effect they might have, the following independent variables were included in the regression models that were run for each outcome measure (i.e. none of these included variables found to overlap in correlational analyses):

1. Age, because the older participants might be more mature and thus better able to engage in the intervention.
2. Educational attainment, because mindfulness might be easier to grasp for those with higher educational attainment.
3. Previous experience of mindfulness, because familiarity with the practices might improve engagement.
4. Percentage of course sessions completion, because those who attended more of the course sessions could be expected to have better outcomes.
5. Baseline scores for each measure, because other studies have shown that greater severity of baseline symptoms predicts better outcomes [102, 223].
6. GHQ-12 baseline scores because those identified as having higher psychological distress at baseline might show more improvement across a range of measures.

Table 7.12 Regression analysis examining change scores and baseline variables

	Self-report Questionnaire						
Independent variables	**TCS**	**BIS-11**	**SOC-13**	**GHQ-12**	**CAAM**	**MAAS**	**DERS**
Age	-.18	.02	-.07	-.44***	-.04	-.12	-.02
Educational Attainment	-.06	.20	-.25*	.16	-.16	-.31*	.28
Previous experience of mindfulness	-.10	.02	-.16	.16	-.20	-.13	.16
% of course completion	-.15	-.17	-.12	-.02	-.02	-.16	-.12
Baseline score	-.62***	-.48**	-.76***	-.59***	-.51**	-.26	-.54*
GHQ-12 baseline score	.11	.21	-.15	-------	-.52**	.28	.26

Standardized Coefficient Beta scores are provided in the table
Dependent variable: change score
* <.10 ** <.05 ***<.01

As shown in Table 7.12, age was a significant independent predictor on only one outcome measure (the GHQ-12) ($r=-.44$, $p<0.05$). Specifically, older participants experienced more positive changes in psychological wellbeing.

Educational attainment was a significant independent predictor of change on two of the outcome measures: SOC-11 (beta -.25, p= .10) and MAAS (beta -.30, p=0.09). Specifically, higher educational attainment was a significant independent predictor of improvements in inner resilience and mindfulness.

Previous experience of mindfulness was not a significant independent predictor of better outcome for any of the included measures.

Percentage of course sessions completion was not a significant independent predictor of better outcome for any of the included measures.

Six of the outcome measures demonstrated that baseline score was a statistically significant independent predictor of better outcome on that measure: SOC-11 (beta = -.76, $p\leq0.001$); TCS (beta= -.62, $p\leq0.001$); GHQ-12 (beta=-.59, $p\leq0.001$); DERS (beta = -.54, p=0.09); CAAM (beta=-.51, p=0.04); BIS-11 (beta = -.48, p=0.02). However, baseline scores on the MAAS did not show significant association with change score (beta =-.26, p=0.24).

For the CAAM, baseline score on the GHQ-12 was a significant predictor of change (beta -.52, p=0.04). Specifically, a higher level of psychological distress was a predictor of improvements in mindfulness.

Models were also run without GHQ-12 baseline scores (results not shown here but included in Appendix 21). In these models, there were no significant predictors of better outcome identified on the CAAM and DERS outcome measure. In contrast to the findings above, when GHQ-12 baseline scores were removed from the model baseline scores on the MAAS showed a significant association with change score (beta -.41, p=0.03). Findings for the other measures were similar to those outlined above in Table 7.12.

Analyses showed that multicollinearity was not a significant problem in any of the regression models run, where variance inflation factors (VIF) were all less than 2.2, and tolerance was less than 1.0. The full results of the models, along with multicollinearity statistics, are presented in Appendix 22.

7.3 Conclusions

This chapter investigated the feasibility of data collection and possible effectiveness of the mindfulness-based course assessed by outcome measures. Overall, collecting meaningful data was found to be feasible at baseline and post-course, with low levels of incomplete data being reported for those who attended data collection sessions. It was not, however, possible to collect sufficient data at three-month post-intervention follow-up to perform a meaningful analysis.

Minor issues were present during data collection sessions, mainly related to difficulties with comprehension, repetition and length. This was especially apparent for the DERS. In the main the measures were age appropriate as assessed by reading scores.

Cronbach's alpha for all seven measures indicated good internal consistency, and correlational analysis were all in the expected direction, providing some confidence that the young men enrolled in this study were answering the questions in a reasonably discriminative way.

In general, correlations confirmed significant medium to strong relationships between the included measures. The strongest relationship was seen between inner resilience (SOC-13) and (1) psychological distress (GHQ-12) and (2) difficulties with regulating emotions (DERS). The results suggest a degree of duplication and future studies could potentially omit some of these measures.

Validated measures demonstrated a range of significant improvements across measures, with effect sizes that suggested meaningful improvements. However, these findings need to be interpreted with caution given the lack of a control group and small sample size.

In terms of independent predictors of better outcomes, baseline severity was a consistent factor that independently predicted outcome for all included measures. Prior meditation experience and percentage of sessions completed were not identified as significant predictors of change on any of the measures included in the current study.

Having presented the quantitative findings the next chapter will now address objective 4 – *to explore the young men's experience of the course.*

Chapter 8 Experience of the programme

This chapter addresses objective 4 – *to explore the young men's experience of the course*.

Having detailed the young men's suggestions to help develop and optimise the course (Chapter 5 *Course Development*), and their views regarding barriers to recruitment and retention on the course (Chapter 6 *Recruitment and Retention*), this chapter focuses on the young men's own subjective experience of the course. Their views are supplemented with observations from both staff at HMYOI Polmont and the mindfulness teacher where relevant. The chapter also compares and contrasts the findings from the quantitative outcome evaluation with those from the qualitative study presented here.

8.1 Results

The majority (15/20) of the interviews with the young men were completed seven days post-intervention. There were two exceptions to this: (1) an organisational error by staff in HMYOI Polmont resulted in three interviews being held 14 days after course two had finished; and (2), where onsite renovations in the institute meant that two of the interviews were conducted 21 days after the completion of course five. Table 8.1 shows dates for when interviews were conducted with the young men, and number interviewed for each course.

Table 8.1 Interview dates for the young men who participated in this study

Course	Course start date	Course Completion date	Number of interviewees	Date of interview
Course 1	12/12/13	13/02/14	**5**	20th February 2014
Course 2	10/04/14	26/06/14	**3**	10th July 2014
Course 3	21/08/14	23/10/14	**5**	30th October 2014
Course 4	09/10/14	11/12/14	**5**	19th December 2014
Course 5	20/11/14	12/03/15	**2**	2nd April 2015

In addition to these interviews, six more interviews were conducted with personnel, including two members of the forensic psychology department (one senior - FP01, one

trainee - FP02); two prison officers (PO01 and PO02); and two more interviews with the mindfulness teacher, which were one year apart and thus reflected different time points in his overall experience of delivering the courses. **Error! Reference source not found.** provides dates for when the interviews were conducted with personnel.

Table 8.2 Interview dates for the prison staff and the mindfulness teacher

Interviewee's	Date of Interview
FP01 & FP02	14th January 2015
PO01 &PO02	27th January 2015
Mindfulness teacher	28th February 2014 (Interview 1)
	23rd January 2015 (Interview 2)

8.1.1 Participant characteristics

In total, a sub-sample of twenty young men who participated in the quantitative outcome evaluation were interviewed.

Demographic and descriptive details are presented below in Table 8.3.

Table 8.3 Baseline characteristics for all participants and those interviewed

	All participants (n=48)	Interviewee's (n=20)
Age Mean(SD)	19.4 (0.9)	19.3 (0.97)
Ethnicity		
White (Scottish)	42 (87.5%)	17 (85%)
White (British)	3 (6.3 5%)	1 (5%)
White (other)	1 (2.1%)	1 (5%)
Black (African)	1 (2.1%)	1 (5%)
Black (Caribbean)	1 (2.1%)	-
Employment Status (prior to incarceration)		
Employed (full time)	11 (22.9%)	2 (10%)
Employed (part time)	2 (4.2%)	2 (10%)
Unemployed (seeking work)	24 (50%)	13 (65%)
Unemployed (unfit to work)	4 (8.3%)	1 (5%)
Other	7 (14.6%)	2 (10%)
Education level reached		
Primary School	20 (41.7%)	9 (45%)
Secondary School	15 (31.3%)	5 (25%)
College	13 (27%)	6 (30%)
Sentence Length* Mean (SD)	52.6 (57.5)	70.0 (79.0)
Time served prior to attending the mindfulness course* Mean (SD)	11.6 (10.7)	10.3 (8.80)
Previously been incarcerated		
Yes	27 (56.3%)	10 (50%)
No	21 (43.7%)	10 (50%)
Previous meditation/yoga experience		
Yes	9 (18.8%)	4 (20%)
No	39 (81.2%)	16 (80%)
Attended other training programmes at Polmont		
Yes	20 (41.7%)	5 (25%)
No	28 (58.3%)	15 (75%)

* represented as months SD: Standard deviation

The sub-sample was similar to the full sample who participated in the quantitative outcome evaluation. Age ranged from 18 to 21, mean (SD) 19.3 (0.9), and 17 (85%) described

themselves as white Scottish. Approximately half of the participants (9; 45%) left school before the age of 16 without any formal qualification. Sentence length varied from six months to 216 months (18 years); mean (SD) was 70.0 (79.0). This was slightly higher than the overall cohort; mean (SD) 52.6 (57.5). Time served in prison before commencing the mindfulness course ranged from 1 month to 26 months, with just under half (nine; 45%) having served less than 6 months; seven (35%) having served between seven to 12 months; and four (20%) having been in HMYOI Polmont for two years, or longer. The mean (SD) duration was 10.3 (8.80), similar to the overall cohort; were the mean (SD) was 11.6 (10.7). For ten (50%) of the young men it was their first time in prison, three (15%) stated they had been incarcerated once before; the remaining seven (35%) had been in prison between three to six times.

Sixteen (80%) of the participants had no prior experience of mindfulness or meditation; two (10%) had previously attended either yoga or meditation classes offered at HMYOI Polmont; one (5%) had been taught meditation by a Psychologist prior to receiving his sentence. One did not elaborate any further (5%).

Most of the participants (15; 75%) reported not being enrolled in any other programmes at HMYOI Polmont before coming on the mindfulness course. This figure was slightly higher than scores for the overall sample (See Table 8.3). The other courses, on which some participants were enrolled, were either education-based (such as numeracy and literacy skills, or computing skills), or vocational courses (such as brick laying and engineering). One youth attended anxiety reduction training, and two attended ‘constructs’, a CBT based programme delivered by the psychology team.

Four of the twenty interviewees did not complete the course, and five were in protective custody. In certain sections of this chapter, the results are represented in terms of those who competed the course i.e. n=16.

Demographic and descriptive details were not collected for the prison staff. Demographic and descriptive details for the mindfulness teacher are provided in Chapter 5 *Course Development.*

8.1.2 Young men's experience

Analysis identified four main themes and eleven sub-themes (Table 8.4).

Table 8.4 Overview of the four higher-order themes and eleven sub-themes

Themes and sub-themes	Description
'Coming Along'	
Intention, motivation and expectation	Incentives and motivators that supported participation in the course and participants' expectations of the course.
'Experience of the course'	
Initial impressions	Reactions to, and early impressions of the sessions Resistance to meditation
Overall experience of the practices and 'homework'	Making sense of the practices Familiarity and acceptance (including overcoming any initial inertia) Awareness of mind/body connection
Doing the 'homework', or not	Reactions and experiences of the 'homework' practices
The group effect	Social cohesiveness Obstacles / group conflict
'Effects'	
Rest and relaxation	Developing experience of relaxation
Dealing with stress	Experience of coping with mental or emotional distress
Improved sleep	Improvements in sleep quality
Being in control	Learning new coping strategies; managing worrisome and ruminative thought patterns Being able to monitor internal emotional and cognitive activity, manage behaviour, and regulate responses accordingly Putting the 'mindful' techniques into practice
Seeing one's self differently, or not	Noticing different aspects of the personality emerge Not reporting any change Shift in perspective Sense of achievement
'Future Use (Applicability)'	
Thoughts about future use	Usefulness of these techniques beyond the course

8.1.3 'Coming along'

8.1.3.1 **Intention, motivations and expectations**

The young men who took part in the mindfulness course were asked about their intentions and motivations for attending the course, and their expectations of what the course would involve. The majority (14/20) said they had no prior knowledge of mindfulness and declared themselves unsure as to what exactly the group would involve, but were willing come along and try it out:

> "*I didn't know what to expect just wanted to try it to see what it was all about and see if it would help in any way*." [PM31, Course 4]

> "*I had no idea that's why I went just curiosity more than anything else*" [PM21, Course 3].

One young man described the course had sounded to him "*kind of new-agey*" [PM11, Course 2], with another anticipating that it was, "*going to be a mad meditation yoga mad hippy guy one of they ones that you can sit and laugh at …*" [PM17, Course 3].

A couple of young men came along expecting a more physical focus, with one anticipating, "*a work out, like a fitness thing … I thought it was like about that insanity stuff that's what I thought it was something like that ...*" [PM23, Course 3].

Just over a third of the young men (7/20) signed up for the course in the hope that it would help with managing stress, or related problems, *"I knew it was to help with stress and all that, that's why I came up…"* [PM06, Course 1].

Several comments from the young men implied not really being aware of what they had signed up for, "*didn't know it was a mindfulness thing or nothing like that but till obviously I started coming and that."* [PM06, Course 1]. Some (4/20) reported they joined the class at the request of staff in HMYOI; others (2/20) to get out of their cell, or (2/20) as an alternative means to occupy their time, *"... I didn't have a work party at that point and I was always locked in; some lad came to my door saying you want to go up to a programme and I said yes…"* [PM13, Course 2]. One participant opted into the group having being

coerced by a friend, *"my mate actually roped me into it so I never had a clue at all."* [PM07, Course 1]. For others (4/20), an interest in exploring something new prompted their decision to attend, "*I wanted to just experience and see what it was all about*" [PM30, Course 4].

A number of the young men (8/20) did not think they would see the course to completion, *"I expected that I wasn't going to last long at this …"* [PM03, Course 1].

8.1.4 Experience of the programme

The young men were also asked about their experience of the course, in terms of the content, the practices, and the classes.

The basic meditative techniques, such as the sitting practice, body scan and mindful-movement require periods of silence with an inward focus, necessarily involving effort to observe the mind. Initially, attention is directed towards an experiential anchor, such as the breath, with the field of awareness then being extended outwards to include the ever-changing internal and external sensations. The practice then requires the participant to observe and examine maladaptive coping strategies, and in time begin to replace them with more adaptive and helpful mechanisms. This practice itself is quite challenging and requires continued periods of exposure, and a genuine motivation and willingness to engage fully with the process.

To help the young men develop these skills the mindfulness teacher introduced new teaching styles, practices and materials different from what the young men were used to. The specific approach taken has been covered in Chapter 5 *Course Development*. The rationale was to deconstruct the young men's normal social context and habitual ways of relating to each other and introduce conditions conducive to the mindful approach. The teacher aimed to create a safe, pleasant and undisturbed environment, where participants could gain an increased understanding on their own inner workings. This new approach to learning featured repeatedly in the young men's accounts, playing a major role in their overall experience of the programme, both in a positive and in a negative sense. This will be explored further in the following sections.

8.1.4.1 **Initial impressions**

For most of the young men the sessions and the way they were delivered were met with apprehension, being viewed as, '*funny'*, '*strange'* or '*weird'*. Their initial response was to find it funny or embarrassing and to laugh, *"I took it as a joke for the first couple of weeks obviously just because of what it was all about"* [PM17, Course 3]; *"at first I was always having a laugh and that and farting and all that kind of stuff …"* [PM27, Course 4]. The mindfulness teacher also reported this as a frequent occurrence:

"*He … constantly laughed … often disengaged entirely. For instance, during a bodyscan, he would start laughing and get up and look out the window for the entire duration. He said he found it embarrassing and awkward and couldn't help laughing."*

The teacher's demeanour was also unfamiliar to the young men, and funny:

> "*I found him funny man, just laughing at him, I've never in my life seen somebody do what he done (laughter), not in my life seen anybody doing that I didn't think people actually did do that*."
>
> Researcher: "*What in particular was he doing?"*
>
> "*He was just relaxing like with his arms on his knees. Do you know what gouching is? … its like your half sleeping, half awake … And that's what it just looked like, he just looked - he was just too funny I just kept laughing at him, I don't know he just done it every single day, the same thing every day, every week*". [PM22, Course 3]

Another young man likened the behaviour of the mindfulness teacher to someone intoxicated:

> "*… he's doing that mad thing with his eyes and he's rolling them to the back of his head and he's still talking (laughter) like that what he's doing man what's he on… It's like he was sleeping but he was talking, I'm like that, is he expecting us to do that?*" [PM17, Course 3]

In addition to this some participants also found the language associated with the mindfulness course peculiar, and funny:

> "*Sometimes though instead of him saying breathing like he says 'think about the breath' and it is a wee bit kind of amusing when he says that you find yourself getting into a bit of a laughing fit*" [PM37, Course 5]

8.1.4.2 **Overall experience of the practices**

The young men initially found it hard to make sense of the mindfulness techniques, such as the unusual sitting posture they were taught:

> "*To sit on your legs in a basket man, just meditating like that (laughter), I didn't expect it to be like that … totally different than what I thought it was*." [PM13, Course 2].

Another young man initially found the body-scan unsettling:

> "*it [the body scan] freaked me out the first couple of times man … I felt like getting up and walking out, man it was freaking the shit out us man, but … breathing through your legs and all that … the air coming in … through your nostrils and … down your throat … I was like that it's weird …*" [PM06, Course 1]

However, experiences of the sitting (breathing) practice were frequently (14/16) described by the young men, regarding them as the most helpful for dealing with challenging experiences outside of the sessions. Specific ways in which they used this technique is described more in section 8.1.5 *Effects.*

The body scan was also commonly referred to by the young men (14/16), perceiving it as the most beneficial practice for inducing relaxation, once it became familiar to them, *" The body scan aye that's what kept me calm …"* [PM06, Course 1]. In particular, the soporific effect of the body-scan practice featured repeatedly, *"They [body scan's] were harder to keep awake …"* [PM35, Course 5]. Some said they felt sleepy for the whole period of the body scan, which meant not being able follow the instructions from the mindfulness teacher, *"… I was always falling asleep so I wasn't even paying attention to what he [the*

teacher] was saying" [PM05, Course 1]. One participant even referred to the practice as the, *"sleeping one"*, noting that he perceived the group were being taught, *"ways to go to sleep"* [PM27, Course 4].

The young men expressed difficulty with maintaining attention and stillness during the body-scan, *"... they [body scan] were a lot harder ... to keep concentration, not fidgeting and pure obviously stay still ... and you want to move and that ..."* [PM35, Course 5]; others attributed this difficulty to the length of the practice, *"... it was just hard because I can't do it for as long as it was ..."* [PM05, Course 1], with another noting that the length (45 minutes) made him sleepy, *" ... sometimes we were (falling asleep) just because of how long we were down for like half an hour and all that 45 minutes ... I would look up and actually hear some people snoring (laughter) ... me as well sometimes but I just think it works."* [PM17, Course 3].

A number of participants described the body scan as strangely rejuvenating, *"... when we finished I felt like I don't know I just felt alive, you know what I mean, I just felt a lot more lively ... like I felt more energetic and that"* PM35, Course 5; with another noting, *"... it was weird because it felt as if you had a quick sleep and that ... you felt like rested."* [PM27, Course 4]; and another became aware of new bodily sensations, *"... Just noticing how certain parts of your body felt you wouldn't normally feel ..."* [PM11, Course 2]

One practice that the young men found particularly strange was the walking practice:

> *"...that walking one, I didn't like too much either man, it was'ney for me [not for me] I can't walk pure slow man ... my wee granny could walk faster man."* [PM06, Course 1].

The mindfulness teacher also noticed how the young men struggled with the walking practice and commented on it in his session notes.

The young men did not routinely refer to mindful-movement (4/16), other than saying they experienced embarrassment when under observation by staff and peers outside of the room. One participant, who had prior yoga experience, particularly enjoyed the movement practices. He suggested that more emphasis should be placed on this element of the course

as a way to help ease the group into a more meditative state, and as a means to offset restless energy:

> " *…more moving practice because there are some guys that can't sit still but for me like … I've been doing yoga and like I can't sit still … I still move about and all of that … some guys … fidget and kind of disturb it when there in the 'mental places' as I like to call it … so a bit more moving about at the start and then do the sitting and the laying down practice toward the end… spent a bit of energy and now you'd have been a bit drained and that way you can sit a bit still and all of that*." [PM08, Course 1]

Another young man said that he regularly stretched 'mindfully' in his cell and had become more mindful of his movements when being escorted to other sections of the institute. Two mentioned that they enjoyed the movement practice within the sessions but did not maintain these practices outside of the group setting.

Despite many of the young men reporting the practices as strange, some were receptive towards learning something new. One young man expressed enthusiasm about having had the opportunity to experience something so different, *"... like the body scanning, never been able, didn't think I was able to do that, didn't think there was a thing called body-scanning, so it was kind of a new thing to me so it was good aye."* [PM03, Course 1]

For others the positive focus of the course was important, *" … just focus on the positive things about you and not the bad things."* [PM13, Course 2]; whilst others was motivated by the mindfulness teacher who he perceived to be a source of support, *"just talks and that and says what do you want to do in the future and that and makes you kind of feel good about yourself … doesn't want you coming back to jail and that"* [PM11, Course 2]

It seemed that once the initial strangeness of the practices had been overcome, an increase in awareness of the connection between mind and body began to show, which was often a pleasant surprise for the young men:

> *"… pretend you're breathing in through your legs and all that stuff and you start to feel pure calm and all that and you actually imagine as if you're doing that… it just shows what the brain can do for you …"* [PM06, Course 1]

"At first I didn't know how to do it right but he [mindfulness teacher] says that I had to focus and I had to breathe a good bit and just imagine that I can feel it and as soon as I done it a couple of times I actually felt … bits of body parts that can't move and all that like back of my thighs and all that, my collarbone and that, without even touching them." [PM13, Course 2]

8.1.4.3 **Doing the homework, or not**

There was a lot of data generated around the adverse reactions participants had to the homework material, with many choosing not to use the CD. Some described it as a source of amusement, whilst others were just not comfortable with the idea of listening to a male voice talk to them on a CD:

"[laughter] I stuck it [CD] on man and he didn't tell me it was going to be his voice through it all …. I just heard this mad voice going hello and the mad wee bell and I just started howling [laughing]" [PM17, Course 3]

"No I didn't take it, no I thought that was weird, why would I want to listen to a guy talking and telling me to relax know what I'm talking about?, I just found that weird I didn't want to." [PM22, Course 3]

"It was a bit hard sometimes because it was a guy talking so it was a bit weird" [PM35,Course 5].

This participant suggested using a female voice instead would make it more accessible:

"if it had been a woman it would have been like I don't know a softer voice or whatever aye" [PM35, Course 5]

In one case, where there was a history of sexual abuse, a male voice was a strong barrier to use of the CD, *'Sounded like some mad porno, it was sort of a bit disturbed so I put it off'* [PM37, Course 5]

Some young men commented that they did not think that the CD was necessary:

"I think I only listened to it like once or something but like you don't really need the CD to practise it though … I don't think many people will do that in their cells to be honest" [PM07, Course 1]

Despite the frequent reservations about the CD, those receptive to the idea reported deriving benefit from listening to it, particularly with sleep:

"when you can't sleep I found it good when I couldn't sleep and that I'd put it on and like start counting your breaths and that man, fall asleep like that because your heads not going 100 mile an hour your trying to focus on that as well kind of helps."

"… especially the CD that's more like a kind of, it acts like a kind of tranquiliser to me; it puts me to sleep so it does" [PM27, Course 4]

One participant even mentioned that he:

"*sent it to my mrs because she has sleep problems and that as well*" [PM06, Course 1]

Some of the young men felt that having the mindfulness teacher's voice on the CD helped support continuity in the practices:

" *… his voice is on the CD so it's good to listen to the same voice that I've been listening to for nine weeks because if it was a different voice you'd be like that it would have been going in the bin but when you listen to the same tutors voice on the CD it's like right and it was like I was here again, it's like I was back*." [PM03, Course 1]

Another young man commented on how the mindfulness teachers voice induced a calming effect:

"I don't know if it's just me that's said this or not but it's something to do with his voice and all that he's got that pure calming voice about him the way he helps you feel pure calm. I don't know what it is about him man, know what I mean, but it's

just, it's weird, it seems to be his voice it goes perfectly with what he's doing." [PM06, Course 1]

One participant found it easy to integrate the formal practices into his day-to-day routine:

> *"I didn't do them all the time but I done them most of the time, walking exercises, movement exercises I do them every day anyway because I walk about I move about in my cell I do the exercises that [the mindfulness teacher] was teaching us to do like all that breathing exercises and all that so aye, the things that I do every day, so basically on a day to day basis sort of stuff ,so aye*" [PM03, Course 1]

However, most comments gave the impression that it was hard for the young men to use the practices outside of the group setting:

> *"it was harder to do it in myself … than to come here and do it. In my cell … I used to make up excuses like I'll do it after this programme or I'll do it tomorrow morning …"*

In this instance once the young man established a routine practising seemed to become easier, *" …but then once you got into the routine of it and doing it then no it was alright*." [PM08, Course 1]

Some of the young men mentioned that although they did not continue with the formal practice meditations they did actually integrate what they were learning into their daily routine:

> "*I put the CD on like once I think but like you practise it and like just not actually like sit down and practise it but you practise it in like things you're doing so not like, suppose your practising it but not like the way you done it in here kind of … so it benefited like quite a few things*" [PM06, Course 1]

Others used the mindfulness practices only at times of stress:

"*I don't really do the meditating any more I only do it when I'm stressed and I'm getting annoyed or I think I'm in the hall with someone and I'll end up having an argument with them …*" [PM13, Course 2]

8.1.4.4 **The group effect**

The majority of participants appreciated being part of a group. Group discussions were seen as helpful, where the young men gained insight into what others were experiencing:

"you're seeing how other people are reacting to it as well and not just the way you're reacting to it." [PM31, Course 4].

"everyone's was different, everyone was thinking different things like … when he says what could you hear … you can hear more and I was saying a forklift outside … it was just all different things everyone else was like focused on. It was quite strange that we could all hear different things." [PM05, Course 1]

One young man commented on how this experience highlighted the commonality in the group and facilitated cohesion:

"*We were all on the same boat, basically we were all, we all had the same sort of attitudes before we, that's what I think anyway, we didn't argue as much, we didn't try and slag [tease] each other and we just got on with it*" [PM19, Course 3]

A few participants spoke about a specific group exercise they had completed, where they were asked to identify people they admired. One participant noted that he was unable to identify someone, but that listening to others was a moving experience, *"Quite touching because most of them were like family, friends, like people that have stood by them through everything and that."* [PM31, Course 4]

One participant reported noticing a change from having a negative outlook, to a feeling more optimism after taking part in the classes:

"*when I was stressed and all that and depressed I feel obviously in a down mood and I feel as if I'm not important and that and nobody even cares and that, that's*

the way I usually felt but since coming here I don't feel like that anymore, I feel as if my life's took another step …" [PM06, Course 1]

It is not immediately clear whether this young man is referring specifically to the mindfulness group or to the institute in general.

However, every group was different and on occasion certain group members needed to be excluded before a sense of cohesiveness could be established. Most of the participants reported initially finding it hard to concentrate on the practices due to the disruptive tendencies of others, *"people trying to carry on and giggle and stuff like that so I had to just blank out and that."* [PM29, Course 4] *"Because at the start it was a bit, there was a couple that weren't really into it, they were distracting."* [PM35, Course 5]

On course three, as numbers dwindled, the importance of group cohesion and connectedness became clear. A sense of belonging and connection at this point was described during the interviews, with the group format now providing the young men with an opportunity to meet new people, discuss aspects of life which was important to them, as well sharing and making sense of their experiences:

"*…just meet new people there and start becoming pals with other people and it's not, when you have a group discussion it's not about daft things or, it makes more sense, things start to make more sense when you think about things*" [PM19, Course 3]

For those remaining participants trust and safety appear to have acted as factor that enhanced a sense of cohesiveness and connection:

"*it's going to sound kind of cheesy but it felt like I was safe when I was coming to these mindfulness classes because I was safe from all the thoughts when I come here*" [PM03, Course 1]

"*I can let my guard down now in the group a bit more and be more feeling and that*." [PM17, Course 3]

Many participants made specific reference to the way in which the group environment on the mindfulness course enhanced their experience, *"the calm atmosphere, quite relaxing atmosphere, everyone was all relaxed and that, there was no one shouting and jumping about"* [PM05, Course 1].

Similarly, the teacher commented in his notes:

> *"So there's a good feeling of cohesion and a good atmosphere I think, amongst the guys, and what was nice … we then went into a really genuine practice for about 25 or 30 minutes, and the guys enjoyed it, they felt good with it"* [Mindfulness teacher, Course 1]

This cohesiveness was captured on the last day of delivery of the first course, when the mindfulness teacher and the participants shared a group hug, which was initiated by the members of the group. The mindfulness teacher described this in his notes:

> "*At the end of the session, as I shook the hand and half hugged one of the young men, the other two came towards me to shake my hand. As I turned to shake the hand of another of the young men, the first opened his arms out and pulled everybody into a group hug. One of the YOs [young offender's] said 'are we doing a group hug now?' and everybody laughed. There was humour and playfulness and a little bit of awkwardness in it, but I think it also reflected that genuine warmth and friendship that had developed over the eight weeks of simply being together*."

Besides the size of the group, the intentions of the group members also featured as a factor that could facilitate engagement with the practices:

> *"…it was quite a small group so it was easy to get on with people … at the end there was like four or five of us … they were all into it also"* [PM35, Course 5].

The mindfulness teacher spoke about wanting the young men to connect in positive ways with their peers. However, it seems that a balance has to be struck between making positive connections and being overly familiar:

> "*… they're all in the same hall so they're all actually friends, which makes it quite problematic because they're straight away into talking to each other about what's going on, the stories, the gossip, and it's very, very difficult to get them to stop talking about this kind of stuff …*"

On the other hand, highlighting the solitude associated with certain aspects of prison life, one young man reported valuing the opportunity to just talk to someone on the course:

> "*when I'm in my cell by myself I've got nobody to talk to. I'm in there by myself and I'm always getting these thoughts in my head and I'm always getting images in my head and it's, I'm tempted to talk to myself but I don't want to talk to myself and then folk look through my door and go 'what you doing?' and then I look like a right idiot because, obviously I've got nobody to talk to … I can't exactly get someone in here to talk to all the time so it's kind of like, it's kind of a big relief when I talk to somebody about what's going through my head, what's been happening, what's happened in my past, what I'm looking forward to in the future, and the present so it's kind of weird*" [PM03, Course 1]

8.1.5 Effects

The third theme captures the perceived effects experienced by the young men from attending the courses. Those who completed all or most of the course described noticing a range of positive changes, varying from subtle shifts in awareness, to obvious alterations in behaviour. For example, many of the young men said that they were sleeping better, feeling better, were more in control of themselves, and managing to relate differently to one another, including in times of potential conflict and violence. Some of the benefits reported by the young men also featured in the accounts of the mindfulness teacher and members of HMYOI Polmont staff. For example, the mindfulness teacher reported the following benefits being fed back to him by the young men:

> *"… helps the guys sleep better, helps them to be more calm, helps them regulate their behaviour better … even little inklings that they start to think about life in a slightly different way …*" [Mindfulness teacher]

One of the prison officers [PO01], who was in regular contact with the young men, mentioned observing positive changes in behaviour amongst those who attended the mindfulness training. These included being more content and settled, less anxious, more in control, not as angry and more engaged and co-operative with the prison staff.

Having observed some of sessions delivered in the early phase of the project, a senior forensic psychologist mentioned being impressed with the compliant attitudes the young men taking part were displaying:

> "*On the first group when they were starting I sat in for a while and certainly the lads seemed to be enjoying it and getting something from it and to be concentrating on it and giving it their full attention so I was pleased with that*" [FP02]

A recruitment manager from the forensic psychology team alluded to a '*softening'* of the young men's attitudes, mentioning that they weren't *'giving the front'* as much, and compared their behaviour to:

> "*… the difference between the cat that's had a fright and wants you to give it a pat and has got the puffy tail and the cat that's angry and if you touch that you're going to lose a finger kind of thing*" [FP01]

However, one of the prison officers pointed out that it was not clear whether beneficial changes observed in the young men were directly linked to the mindfulness course:

> "*…it might be because they're just growing up a wee bit, just being a wee bit more mature, a bit more settled within themselves, a bit more settled within the whole regime, they know what's happening, they know they get fed at such and such a time, the get rec [recreational time] at, and it puts them more at ease*" [PO02]

This prison officer was not convinced that changes observed were '*out of the norm'*, noting that from his perspective, "*in the day to day running of the Halls I wouldn't say there is anything in particular that they've changed or they've started to think about things*"

However, the majority of the young men who completed all or most of the course did credit positive changes to the mindfulness course:

"… like I've said … about 20 times now it's this course, it's helped me out, the course has really done the job so aye." [PM03, Course1]

The extent to which beneficial changes were said to be translated into the everyday lives of the young men varied. The young men spoke about feeling more relaxed, less stressed, sleeping better, feeling more in control and viewing themselves and others differently.

However, the way the young men described the relaxation benefits from the course were qualitatively different to the way they spoke about feeling less stressed. When talking about relaxation they seemed to be referring to an embodied experience of calmness and peace. This appeared to be happening naturally, with limited effort on their behalf. On the other hand, when talking about feeling less stressed, they referred more specifically to a reduction of mental or emotional duress coming from aversive or demanding experiences (both internal and external). From their descriptions, in order to achieve this reduction in stress, effort was required on their behalf. For this reason both of these have been distinguished and outlined separately, whilst still appreciating that they are likely to be linked. Moreover, both themes filter into changes in sleep described by the young men, in that relaxation and reduced stress facilitated better sleep and vice versa.

8.1.5.1 **Rest and relaxation**

Learning an effective relaxation technique was the most frequently noted benefit from the young men who completed the course (16/16):

"I'm one of they kind of like, it's really, well it used to be hard for me to relax. I was dead tense all the time … now I could walk about I'm kind of, I'm not walking about all tensed up, now I'm all nice and chilled out" [PM27, Course 4]

The mindfulness teacher spoke about how connecting with the body, as opposed to the mind could be responsible for the relaxing effects of the mindfulness course:

"the first most tangible thing which probably actually happens for them is that they feel more calm, the calming effect of just coming to the body rather than being so caught up in thoughts in the mind"

For the majority of the young men, continued exposure and increased familiarity with the practices was a perquisite for the development of a calm and relaxed state. Participants described initially not being able to sit still for even a short period. However, doing this seemed to get progressively easier as the course continued. On the other hand, descriptions from those who did not complete the course, differed in that they described not really seeing the practices work:

> *"Just a guy telling us to relax and it didn't really work for me. It's hard to relax. I just kept laughing and wasn't really used to that kind of thing …"* [PM22, Course 3]

Interestingly, for one young man the calming effect of the practices was unfamiliar, and seemed to have acted as a deterrent, leading to him leaving the group, *you're in here and your pure relaxed and likes of me it's something I'm not used to"* [PM05, Course 1]

A forensic psychologist described a different demeanour in the young men when they arrived to take part in the class, as opposed to when the class had finished:

> *"just in kind of directions of language … coming up … do the big walk … shoulders up … gather their arms out, 2 pegs under the arm … see them leaving more kind of relaxed … they were still jumping … laughing, loud… but there wasn't the same kind of like 'no you're going to have to wait before you get taken back' … 'we're always at the end' … much more sort of lamenting patience rather than 'why are we at the end' sort of aggression"* [FP01]

8.1.5.2 **Dealing with stress**

Just over half (9/16) of the young men who completed all or most of the course emphasised the potential of the mindfulness training to help them cope with stress, thus improving their overall sense of well-being. When asked about his experience of the mindfulness course one young man commented:

> "*I don't feel stressed as much as I used to and all that and don't feel pure panicky and all that and depressed all the time*" [PM06, Course 1]

Similarly, another young man described how the mindfulness practices had a grounding effect when stress was looming:

> *"I have been able to use it a lot because sometimes you get, see, anxious and the breathing techniques he taught us, I mean it just brings you back down, makes you feel better, relaxed and concentrated …"* [PM35, Course 5]

Those who continued the mindfulness practices between the weekly sessions commented on how they were able to implement these techniques in the face of challenges:

> *'I get heavy stressed out on the phone if I've been let down for visits. I just take a big breather and control myself … when I am at visits and my friend or relative tells me something that makes me angry I just take a big deep breath and then just try and talk to them nicely"* [PM19, Course 3]

The mindfulness teacher felt that the context offered within a mindfulness setting may have an important role:

> *" … coming to an environment that feels quite safe … that they can feel kind of relaxed in … it reduces the level of aggression … just that ramped-up boisterous machismo bullshit that goes on … when people come in their storming and forming and like people trying to establish themselves … the group would , they would tend to chill out a bit … it seems that mindfulness really allows them to just calm down a bit, you know?"*

Many of the young men reported how the confinement of being in prison was a source of distress. They provided numerous comments about how the mindfulness practices helped act as a buffer against this, *"… especially in this kind of situation when were behind four walls and like frustration and just keep calm basically in a situation like that"* [PM30, Course 4]

One participant mentioned how the course had helped him to come to terms with the reality that he would be transferred to an adult unit once aged 21, *"… I know it's going to work for me … when I get transferred to an adult prison"* [PM27, Course 4]. A prison officer also commented on the plight of this young man, and how mindfulness had helped

him to take control, *"Yeah he's more in control of himself than he's ever been ... he's frightened about when he goes to adults that he will be beaten up ... stabbed ... slashed ... sexually assaulted ... he appears to be far more relaxed ...*" [PO01]

Similarly, another young man noted how the mindfulness practices had helped him to deal with his relationship breaking up, on account of him being incarcerated:

> *" ... it really just stopped me thinking about my ex-girlfriend ... I had an ex-girlfriend for three years there and obviously I broke up with her because I was in here and couldn't trust her out there and just basically stopped thinking about that as well so it's helped with that because that was a worse experience for me than thinking about the time I got stabbed and that..."* [PM13, Course 2]

During the interviews the young men provided numerous examples of how they had used the mindfulness practices as a way to buffer heightened emotional states. The following excerpt provides a detailed description of one young man's experience after he received some bad news over the phone:

> *"I was talking to my dad on the phone and he says to me, 'I've got a bit of bad news for you your auntie ... has died and it was cancer', she didn't even know she had it. Then he goes, 'Aye your papa, got a bit of bad news through too, he's got cancer'. So, especially being in jail near Christmas and then I get that news and I was, I just felt my heart rate kind of racing a bit and a lump in my throat and I'm like, 'oh no I need to get back in my gaff [cell] here', and I said to one of the officers I goes, 'right you can lock me back up'. So I went in to my gaff [cell] and I sat and I was holding it back, and holding it back. I didn't know whether I was going to wreck my gaff [cell] or burst into tears or just go completely crazy. The minute my gaff [cell] door was locked I sat and had a smoke and just started, just burst into tears but I've not told any of the officers yet because I'm not really the type for like taking sympathy very well like it makes me feel like a bit of an attention seeker and I don't really like that, I don't really like being the centre of attention but using the mindfulness breathing techniques and counting that really helped I just kept my telly [television] off, opened up my window and I just kind of concentrated on the sounds and I felt I was getting like upset worse, I just I concentrated on my*

heartbeat and I used that as well and I counted like from 1 to 11 or 12 and then after that, that was me I was back to normal" [PM27, Course 4]

The young men (14/16) also reported using the mindful breathing techniques to help manage distressing, stressful or uncomfortable emotional states, particularly when faced with the death of a loved one, which was described as a common experience in this group. One young man provided insight into his reaction at the time of hearing about the death of his friend, explaining how focusing on his breath helped him to regain composure, thus avoiding spiralling into a negative state:

"It was after I heard bad news off my mum [his friend had died from illicit drug use] I was just looking for an excuse to go off my nut and then I could actually feel it like right there what I'm feeling and I was like that right just calm down now because I'm going to end up getting in a downer and then I just like in 2 minutes just a wee breather and that cleared my head" [PM17, Course 3]

8.1.5.3 **Improved Sleep**

Difficulty with sleeping was a common experience amongst those who had completed the mindfulness training, with most reporting that their sleeping had improved as a consequence of participating in the programme (9/16). Some mentioned initially being attracted to the course when they heard it had the potential to help with sleep:

" ... but that was my main problem in here - I wasn't able to sleep. I was diagnosed with PTSD and plus, that with the anxiety kind of acts out when I'm sleeping. I have pretty violent dreams; and that boy that bullied me, I always seem to have these dreams that we were always having an argument. Every bad dream I have he's there and I just, I waken up and I'm like sweating and all that but from I've done this I'm a lot calmer, I don't waken, or when I waken up I'm not as angry any more I'm nice and calm. I'm maybe a bit annoyed but I'm like that I'm in jail that happened then I need to try and move on from it now ..." [PM27, Course 4]

One participant relayed that he was now able to fall asleep without using medication:

"made me fall asleep and that was without taking the medication that I'm on the now because the medication that I'm on the now is anti-depressants and through them courses at night time I didn't even need to use the medication whatsoever it was just a case of sticking on the CD and falling asleep" [PM03, Course 1].

However, although articulating that he derived benefit from listening to the CD, the young man later explained that he did not keep using it. Instead, he reverted back to using medication, which he described as having similar effects:

"*but like I say most of the time I didn't use the CD, I didn't do any exercises so obviously I'm needing to take my medication to get me to sleep and kind of do the same thing as what this course has done and relax my brain, get rid of the negative thoughts and then knock out, just go to sleep"* [PM03, Course 1]

The young man spoke about how the mindfulness practices helped them let go of past injustices and associated traumatic memories, and how this change had led to less disturbed sleep. One said that:

"... obviously I was an angry boy and because the person that stabbed me got away with the charge and usually I wouldn't like people going to jail man but I wanted him to go to jail ... he was an older guy ... about 30 ... I was angry that he got out and I couldn't do anything because I was in here but I started calming myself down and now I don't even think about it. I don't even have dreams about it anymore ... I'm starting to forget what actually happened and forgetting seeing the knife going into my skin ..." [PM13, Course 2]

8.1.5.4 **Being more in control**

After taking part in the mindfulness courses, most participants (14/16) reported feeling more able to control and regulate their impulses, thoughts and emotions; effectively having more choice how to respond, *"... to be able to control yourself and not just like do something stupid"* [PM07, Course 1]

The mindfulness teacher also noted this change:

"…it gives them more choice … they do realise that they have more awareness and more choice … more emotionally aware which gives them a degree of freedom to their actions"

More than half of the young men who completed all or most of the course (9/16) credited the course with facilitating a change in how they responded to internal or external stimuli which had the potential to provoke strong reactions. For some, this decoupling of urge from response meant becoming aware of intense internal bodily sensations, and being able to choose how to respond i.e. to accept, tolerate or manage these experiences, as opposed to '*losing their temper'*. The young men provided different examples of how they managed to achieve this. One described following the guidance of the mindfulness teacher:

"I can't stand that when somebody butts in, get really annoyed, and I did get proper riled up at one point and I'm sitting like that, 'would you stop butting in' [reference to another group member and [mindfulness teacher] is like that right the way your feeling the now try … concentrate on the breath ... I'm like deep breaths … I'm like I feel a bit better now … I mean I was that mad that actually my body temperature even rose. I was roasting. I'm like that I wanted to jump over the table, but I didn't through the breathing exercise and counting" [PM27, Course 4]

The breathing practice was often reported as having a powerful calming effect for the young men. Focusing on breathing seemed to have a positive effect on the young men's internal experiences; enabling them to achieve a 'de-centred awareness' of these internal processes. From this space, pressing urges appeared to have less authority over their actions. One young man described how he was able to sit out a challenging experience, and reflected his reasoning behind this behaviour:

"I couldn't like focus on what was happening … I just wasn't concentrating at all … before I wouldn't have been able to like sit through … I'd get up and walk out or I'd just go and sit somewhere else … I wouldn't be bothered about anybody else doing it" [*PM29, Course 4*]

Another young man spoke about being able to detach from anger-fuelled urges to strike out, instead being able to tune-in to his breathing:

> *"I was able to channel it [anger] into breathing, instead of ending up getting into bother through like hitting somebody or trashing myself. I just sat on the edge of my bed with my hands on my lap and I just kind of like kept my back straight, deep breaths in and deep breaths out …*" [PM27, Course 4]

There were also numerous reports from the young men about times when they felt unable to regulate habitual tendencies. One young man, diagnosed with PTSD, highlighted the unpredictable and intense nature of the flashbacks that he regularly experienced. He mentioned how volatile and disruptive the flashbacks could be, impinging upon his day-to-day living, and even attributing to them the reason for his incarceration:

> *"A lot of bad flashbacks, really, really bad flashbacks, I got myself into trouble for flashbacks and this is why I'm in here because of this flashback and they just come into my head as well … you don't know what you're doing, you know, in the moment … your basically doing stuff that you can't even remember what you're doing".*

As a result of previous traumatic experiences, this young man was apprehensive about being advised by the mindfulness teacher to *'stay with the flashbacks and see how it goes'.* The young man commented, *"it was quite scary, like a really bad experience because I didn't know what might have happened when I've come out of that flashback. I might have harmed myself".* However, after trying the breathing practices he described having less of the distressing experiences, *"… basically have put it all down to this course that I've kind of had less flashbacks, had less thoughts, less images and all that stuff … this course … it has helped me out a lot, definitely a lot."* [PM03, Course 1]

Although a number of the young men reported various beneficial effects in relation to coping with strong and intense impulses, such a view was not unanimous:

> *"I thought it [mindfulness course] helped with your anger management problems and that and when I came up I realised it didn't …*"

Elaborating further on this point, the young man stated, "*… I just prefer to lie on my bed watching the telly …"* [PM22, Course 3]

The ability to regulate one's internal state, and thus subsequent actions, was reflected in many of the comments made by the young men (14/16). When asked directly if there was anything that was a turning point. One young man replied, *"… the turning point I'd say my behaviour and anger … my breathing and all that to kind of stop getting angry and make me feel a bit better … it makes me calm down when I'm arguing with officers in here"* (PM13, Course 2). For some this meant employing a cognitive strategy to modify their behaviour. For others forethought acted as a motivator (for example a desire to maintain a harmonious relationship with those around them):

> *"Before the mindfulness … I was one track minded so if somebody said something to me … I'd be like sock [strike] him man … now I'll go wait, I'll take it with a pinch of salt. I walk off like to try and not escalate the situation, like the guy done on the train [story that the mindfulness teacher told in the group], try to keep calm and order'* [PM08, Course 1]

For others, simply not reacting to provocation appeared to be the best solution, " *just walk away … there's no point in it"* [PM17, Course 3]

Most young men noted a subtle difference in how they now related to their experience. Some described a process of observing their own behaviour and then being able to reach an understanding as to how their own attitude contributed to the situation. For example, one young man revealed a previous tendency to provoke others, *"Just fighting, arguing with people, just arguing for the sake of arguing"*. However, having gained insight into the potentially negative impact of this behaviour, he said he now actively chooses to resolve any potential conflict, "… *I'll just say I don't need to argue and try and resolve things than just reacting".* This change seemed to exert a positive influence over his emotional state as well as being intrinsically rewarding for him, "… *so that's why I feel better"* [PM19, Course 3].

Some of the young men described becoming aware of the transient (and potentially destructive) nature of their emotions:

"… your mind is like clouds, it's dark, grey and different kind of weather, and one minute you can be happy and next minute rain, thunder, it explodes …" [PM30, Course4]

For a number of the young men such a recognition facilitated a more purposeful and intentional control over their own emotions, with some making a conscious effort to orientate their mind towards more positive qualities, *"you're trying to get hold of the sunshine and brighten it up"* [PM30, Course 4] or employing a cognitive strategy to help regulate their emotions, ***"****I don't get angry as much, I think about things more"* [PM19, Course 3]

A number of the young men (9/16) were able to use this self-reflective capacity in a helpful and rewarding manner; describing first becoming aware of their racing minds, *"pure 100 mile an hour every day",* [PM29, Course 4]. One young man noted how distractible his mind is, and how he used the mindful breathing techniques to help focus his attention, *"I'm easily distracted but it does help me like once I get in that zone like when … you do a couple of deep breaths and … clear your mind … you just get into that zone and it's like tunnel vision"* (PM08, Course 1). Another young man recollected how, "*things used to be on my mind constant"* before noticing how such thoughts have become less burdensome for him, "*… I don't forget about them but they're not annoying me as much"* [PM19, Course 3]; others described making mental space, from where they could then make a considered response, *"… have a clear mind, just step back and take a breath, take everything out of your mind and then we'll deal with everything..."* [PM35, Course 5].

For other young men, anchoring awareness in the body allowed some respite from the busyness of the mind, *"focusing on your body was letting you come away from your head and not be preoccupied with how racing the mind can be"* [PM08, Course 1].

Those participants who continued attending the mindfulness classes reported noticing a change in their thought content:

"My thoughts are a lot clearer so I'm not just thinking about daft things or what I'm going to do if this happens you think about what you want to do for the best,

sort of thing, when you get out of here, that just keeps me a lot calmer as well" [PM19, Course 3]

Another young man reported a quietening process, *"just put my mind at ease"* and a letting go of, "*Getting all the nonsense out my head. It relaxed my brain, it was taking thoughts out of my head that I didn't want to be there"* [PM03, Course 1]

Reflecting on the consequences of one's behaviour featured highly in the changes reported by the young men who completed all or most of the course (9/16):

"Aye I was fighting again just like arguing … my head is saying hit him go, throw the first punch and that man. I'm just thinking, oh man, think of the consequences. Like, I'll lose my job up in the hall, I'll not get my parole, stuff like that. I'll get kicked off the hall and that, know what I mean, just think about things before I do it now ..." [PM29, Course 4]

For other young men, a re-evaluation of their situation seemed to have sparked an attitudinal shift. For example, one young man reflected on the potential that his past had to negatively influence and shape his future and how he wished to change this:

"… just being here as well it's made me realise more things know what I mean about life and that, it's made me think about things in the future … it's just made me think that life's too short to ruin, know what I mean, you don't want to be here all your life … too much to lose … you end up getting slashed .. can't get a job because you have a big scar down your face" [PM06, Course 1]

Reflecting more on the situation this young man noted:

"… it only takes one hit to kill somebody, know what I mean, and that one hit could change your life completely man that's just made me realise that I don't want a life like that" [PM06, Course 1]

A number of participants reported being able to approach aspects of their past that they had previously pushed-out of their awareness; and taking more responsibility for their actions that had contributed to them being incarcerated:

> *"there are certain thoughts from my past that I don't really like dwelling on. From doing this course I've kind of actually started sitting down and not dwelling on the past … but like it did help me to face up to some of the stuff that I've done in the past … helped me to look at certain stuff differently"* [PM08, Course 1]

One young man spoke of his goal, *"to apologise to the person I done my crime to, because I shouldn't have done that to them. I feel bad."* [PM17, Course 3]

A number of the young men attributed modifying their behaviour to a new-found insight into the frivolity of their behaviour, *"…. you end up you see how silly it is … what you are doing. …"* [PM35, Course 5]

Some of the young men (6/16) were able to develop more contemplative attitude towards challenging situations, especially in regard to how they related to others. For example, one young man described reflecting on a situation, considering it in terms of his own needs, and then viewing the situation from another person's perspective:

> *"So any time after that, any time I got angry I just sit down and like think what's upsetting me and then try and put myself in the other person's shoes ... I try and … come at it from a different angle"* [PM08, Course 1]

Several young men (7/16) relayed positive changes in their relationships with others. One described how he had used mindfulness to help him deal with difficult personalities in the prison:

> *"certain people in here they are like quite hard to take and obviously you get annoyed with them and stuff, it helped me with that like just kind of shrug if off kind of and just move away from the situation instead of letting it escalate"* [PM07, Course 1]

Another described how his relationship with the officers had improved as a consequence of being able to manage his emotions more effectively. However, he emphasised that he still feels anger, but can control it more:

"Before I done that [mindfulness course] I used to just sit and argue with them and just start shouting and get reports all the time but since I started that [mindfulness course] I've learned how to like start controlling it and being able to breathe and then just it goes away but. I'm still angry but it's not as bad as what it could have been … just not as annoyed as what I could have been, just I could've been arguing with them, swearing at them but I just choose not to do it anymore and just calm myself down before it gets out of hand" [PM13, Course 2]

One young man gave an example of how he dealt with conflict which had arisen with a prison officer:

"… a screw [prison officer] said something to me … something that I didn't like him saying to me and I was going to batter his head in but I didn't I just kept calm so I felt better about it …"

The same young man also noted improved relations with his peers:

"… like yesterday I was going to end up fighting with a boy I was just I told him to come to my cell and we would talk about it so I didn't feel anger or things like that, just shook hands after it" [PM19, Course 3]

8.1.5.5 **Seeing themselves differently, or not**

Numerous participants provided reflections on themselves, prior to completing the mindfulness course. Half (8/16) commented that they saw themselves in a more positive light. For example, one young man said:

*"… because before … I was a lot different before I mean I woul*d *get agitated all the time and I wouldn't know how to deal with it things like that. I was more of an angrier person …"* [PM35, Course 5]

This same young man now viewed himself differently:

"… a bit more relaxed and happy." [PM35, Course 5]

Some young men expressed surprise when they noticed a calmer more relaxed side of themselves emerge:

> *"I didn't know I had this kind of side to me, I thought I only had a stress side, but this side brought my calmer side into realisation, which I was happy for and glad that I done it."* [PM17, Course 3]

Others relayed a sense of accomplishment about being able to maintain calm when placed under stress:

> *"I think it's helped a wee bit by changing me basically aye, if I wasn't mindful and that I don't know if I would be able to be calm in a situation like that"* [PM30, Course 4]

Some participants (4/16) did not feel that the mindfulness course had much of an impact on how they saw themselves, for example:

> *"Nothing, just the same really, I never really thought of myself in a certain way or that before so I'm not sure if that really can help me like that"* [PM07, Course 1]

A number of participants (8/16) noticed an improvement in their sense of self-worth, which in turn led to an increase in confidence and ambition:

> *"I do feel a better person I do, I do feel better in myself as well, I was confident but I feel more confident that I don't need to worry about 'Oh what's he saying' and getting paranoid about things like that, I just get on with it now."*[PM19, Course 3]

For others there was a change in perception of their own self-efficacy. In order words, there was a change in their perception of their own ability to deal with personal insecurities or challenging situations:

> *"doing all this mindfulness as well it's just gave me more confidence and that it's boosted it up for me to start doing more stuff and still getting in with my activities and all that like before that I used to feel as if, no I don't want to do this, I feel like the odd one out and all that, know what I mean? But see now I don't really care I*

just feel like, well. It's for my benefit and if I want to do it, I'm going to do it, know what I mean." [PM06, Course 1]

"I was really insecure at first even on the outside. I was really insecure because of that boy but now I'm like I'm not even caring about it anymore. I know I'm like, I know I'm better and I'm stronger than what I was before I started [the mindfulness course] and I'm a lot more comfortable being around folk, I don't get as paranoid any more when if there's maybe somebody standing behind me …" [PM27, Course 4].

A change in this young man's behaviour was also perceived by his personnel officer, *"... his [PM27] confidence and self-esteem have picked up and he's moving forward" PO01*

8.1.6 Thoughts about future use

Most of the young men (11/16) said they hoped to sustain their mindfulness practice after the course was over, as well as when released back into the community. Perceived obstacles included boredom, lack of time, and discipline; as well as the practices not being familiar to their friends, family or local community. Understandably, some of the young men drew attention to obligations and responsibilities that they would meet on their release. For some it seemed unrealistic to dedicate time to the mindfulness practice, as these other challenges would now occupy their attention:

"Just like obviously I'm going to go out there and my heads going to be always doing something because I've got to go out there, find a job, help my sick mum, go to the shopping centre every day for her, got to go buy clothes and buy furniture and that for my house, got to go and see my wean [child] and that." [PM13, Course 2]

Several participants emphasised the importance of perseverance and commitment if change was to be achieved and maintained, some young men (6/16) hoping that it would help them to desist from further offending behaviour:

"… it [mindfulness] might help me out there if I stick to it, if I don't stick to it man it might not help but I'm going to try and stick to it when I'm out there so I don't come back to prison." [PM29, Course 4]

8.2 Drawing the findings together

Following completion of the qualitative analysis, findings were considered in relation to quantitative outcomes as described in Chapter 4 *Methodology and Methods*. Subsequent sections consider divergence and convergence of findings from each method in relation to each outcome measure in turn.

8.2.1 Impulsivity

Impulsivity is a multi-faceted construct, typically describing a tendency to act quickly without considered thought or anticipation of future consequences [212]. In this study two scales were used to measure this construct, the TCS and BIS-11. To summarise, the TCS is a self-report four-item measure of the 'frequency' of impulsive behaviour (difficulty sitting still, lack of self-control, acting without thinking and getting into trouble) [211]. The BIS-11 is a more detailed measure, assessing impulsivity across three main domains; attention, motor and non-planning [212]. At post-intervention improvements in impulsivity on all four constructs were statistically significant, with a medium effect size.

Comparisons between quantitative and qualitative findings are shown in Table 8.5. The table shows that in qualitative interviews young men spoke about changes in their response that can be interpreted as better managing different aspects of impulsivity. Nearly all of the young men (14/16), who completed all or most of the sessions, mentioned being able to exert self-control to regulate emotions and actions, with some (5/16) being better able to maintain stillness (congruent with the TCS). However this was not always the case for all participants and some young men (7/16) found 'sitting still' quite challenging, with one actively leaving the group having struggled with this component of the programme (divergent with the TCS).

In their accounts, the young men (5/16) spoke about noticing improvements in their attention and concentration (congruent with the attention sub-scale on the BIS-11). They

also provided numerous examples of being better able to operate choice in their response, rather than ‘knee-jerk’ reactions to thoughts and feelings (14/16) (congruent with the motor sub-scale on the BIS-11). Although nine young men associated the training with an improved ability to manage anger problems, this was not the case for one young man (divergent with the motor sub-scale on the BIS-11). Examples of an increased ability to act with reflection and regard for consequences (9/16) were also evident from the young men’s accounts (congruent with the non-planning sub-scale of the BIS-11).

Table 8.5 Mapping results from the TCS and BIS-11 to qualitative findings

Quantitative Outcomes	Description of concept	Qualitative findings (Divergent)	Qualitative findings (Convergent)
Impulsivity			
TCS (ES:0.72; p=0.001)	Frequency of impulsive behaviours	Maintaining 'stillness' for some of the young men was challenging, acting as a deterrent for one participant, who left the group: *"I couldn't sit still any longer, it was just the long periods … even in that cell man, your constantly moving, making a cup of tea doing something. I'll get up and clean the gaff [cell] because I hate sitting still"* [PM05, Course 1, B:17,A:14,CS=-3]	The young men described how the training facilitated being able to sit still, to think things through before acting, and to keep themselves out of trouble (14/16): *"Normally I would have just hit him with a snooker cue, then just walk away but no I'm not going to do anything like that – there's no point in it"* [PM17, Course 3, B:14, A: 9, CS=-5]
BIS: Attention (ES:0.44; p=0.01)	Inability to focus or concentrate		The young men described improvements in concentration and attention (5/16): *"I'm easily distracted but it does help me like … you do a couple of deep breaths and … clear your mind … you just get into that zone"* [PM08, Course 1, B:19,A:21, CS=2]
BIS: Motor (ES:0.39; p=0.04)	Acting without thinking	One young man did not perceive the training as helpful for regulating his emotions: *"I thought it [mindfulness course] helped with your anger management problems and that and when I came up I realised it didn't …"* [PM22, Course3, B:27,A:28,CS=1]	Being better able to regulate emotions and behaviour featured highly in the young men's accounts (14/16). They described situations where they deliberately thought things through and actively choose to resolve any potential conflict, "*I don't get angry as much, I think about things more"* [PM19, Course 3, B:37,A:24,CS=-13] *"I can't stand that when somebody butts in, get really annoyed, and I did get proper riled up at one point … I wanted to jump over the table, but I didn't through the breathing exercise and counting"* [PM27, Course4, B:26,A:23, CS=-3]
BIS: Non-planning (ES:0.36; p=0.01)	Lack of foresight or forethought		Reflection on the consequences of one's behaviour featured highly in the young men's feedback (9/16). This included describing an increased ability to *'put the brakes on'* and appraise the situation before responding: *"Before the mindfulness … I was one track minded so if somebody said something to me … I'd be like sock [strike] him man … now I'll go wait, I'll take it with a pinch of salt. I walk off like to try and not escalate the situation … try to keep calm and order'* [PM08, Course 1, B:26, A:27, CS=1]

B=Before score, A=After score, CS=Change Score

8.2.2 Mental Wellbeing

Psychological distress (inability to cope with stress, feelings of worthlessness/depression, and sense of 'hopelessness') was assessed using the GHQ-12. To recapitulate, the GHQ-12 assesses an individual's inability to carry out normal functions as a result of psychological distress. At post-course, improvements in mental wellbeing were statistically significant, with a medium effect size. Improvements noted on the GHQ-12 were also captured in young men's accounts (Table 8.6). The young men reported being better able to manage stress (9/16), and greater feelings of self-efficacy following the course (8/16), all of which can be seen as congruent with the definition of psychological distress measured by the GHQ-12 and aspects of better psychological functioning and wellbeing.

Table 8.6 Mapping the results from the GHQ-12 to the qualitative findings

Quantitative Outcome	Description of concept	Qualitative findings (Divergence)	Qualitative findings (Convergence)
Psychological distress (ES=0.50; p=0.003).	Inability to carry out normal functions due to mental distress	Non apparent in text	Just over half (9/16) of the young men who completed all or most of the course emphasised the potential of the mindfulness training to help them cope with stress, thus improving their overall sense of well-being. *"It [flashbacks] doesn't affect me as much now"* [PM03, Course1, B:7,A:2,CS=-5] "I was in a heavy attack a couple of years ago and I had anxiety for two years and it's helped with my anxiety" [PM13, Course 2, No data available] Change in self-efficacy, to include improved self-worth and confidence were noted (8/16). *"... a bit more relaxed and happy."*[PM35, Course5, B:2,A:1, CS=-1] *"I do feel a better person I do, I do feel better in myself as well"* [PM19, Course 3] *"Doing all this mindfulness as well it's just gave me more confidence and that it's boosted it up for me to start doing more stuff"* [PM06, Course 1, No data available]

B=Before score, A=After score, CS=Change Score

8.2.3 Mindfulness

In this study two self-report questionnaires were used to measure the construct of mindfulness, the CAMM and MAAS. Both measures rate 'trait mindfulness' i.e. the respondent's awareness of and attention to what is happening in the present moment, also referred to as 'dispositional mindfulness' or 'day-to-day mindfulness'. More specifically, the CAMM is described as assessing present-moment awareness and non-judgmental, non-reactive responses to inner experience [216]. It is an age-appropriate measure. The MAAS is a more widely used generic measure of mindfulness and has a slightly different definition to the CAMM in that it places less emphasis on reactivity [215]. The medium and significant treatment effect size noted on the CAMM suggest enhanced mindfulness and reduced reactivity following participation in the programme. The MAAS showed a positive trend towards improvements, with a small, but non-significant, treatment effect size.

These quantitative findings were further supported by many of the young men's accounts. Table 8.7 shows that the young men reported being able to make behavioural changes by applying mindfulness techniques they had learned during their training. They talked about using the breathing practice and the body scan, but how they specifically learned mindfulness in cognitive terms is less apparent and not talked about.

The young men provided examples of being mindfully aware and present to what they were experiencing when under duress, without reacting to these sensations (congruent with the CAMM). They described being able to shift their attention to different internal sensations, facilitating a change in their overall experiences and anchoring awareness in the present moment (7/16) (congruent with the CAMM and MAAS). In contrast, one young man described actively using the practices to escape from the present moment (divergent with the CAMM and MAAS), with others (9/16) using it to aid sleep (divergent with the CAMM and MAAS).

Table 8.7 Mapping results from the mindfulness measures to qualitative findings

Quantitative Outcome	Description of concept	Qualitative findings (Divergent)	Qualitative findings (Convergent)
CAAM (ES:0.32; p=0.03)	Present moment awareness and non-reactive response to inner experience		The young men provided numerous examples of being present to their experience and not automatically reacting. For example: *'I did get proper riled up at one point and I'm sitting like that would you stop butting in [reference to another group member] and [mindfulness teacher] is like that right the way your feeling the now try … concentrate on the breath … I'm like deep breaths … I'm like I feel a bit better now … I mean I was that mad that actually my body temperature even rose. I was roasting. I'm like that I wanted to jump over the table, but I didn't through the breathing exercise and counting"* [PM27, Course 4 B:26, A:25, CS=-1] *'If I come back here in a bad mood, go down to my gaff [cell] lie on my bed and just kind of sit there and just be aware of everything else that's going on about me. That is enough to keep me calm' [PM27, Course 4]*
MAAS (ES:0.27; p=0.13)	Open or receptive awareness of and attention to what is happening in the present moment	One young man described using the practice to take him away from the present moment, finding it too stressful: *"…just go somewhere like in my mind, I'll go to a happy place and just relax'* [PM17, Course 3 B:45,A:61,CS=16] Participants (9/16) described difficultly sustaining attention, especially during the body scan, instead tending to fall asleep: *"The one where you are lying down … I was always falling asleep so I wasn't even paying attention"* [PM05, Course 1, B:45,A:56, CS=11]	The young men provided examples of being able to bring awareness back to the 'present' moment (7/16): '*I started being more in the present, at first I didn't like it because normally I plan for the future. I'm more future orientated so I'd sit and think about what I'm going to do when I get out and try not to focus too much on the present, but from I've been doing it I've been more aware of my surroundings and people around me and how I react to certain stuff and how I react to certain people and all of that, so it's opened my eyes a bit as well.* [PM08, Course1 B:62,A:44, CS=-18,] *'just kind of taking yourself off auto pilot where normally you don't notice certain things, just helps you notice things better - just notice more. This was teaching you to notice them things like that … just helping you into the present. You felt more aware'.* [PM11, Course 2, B:68, A:72, CS=4] '*My head was all over the place … what I've done in the past, so to focus my mind was different. I have never done that before so I feel a lot better now. My mind is here, aye, rather than all over the place, and more relaxed and things like that.'* [PM35, Course 5, B:63, A:82, CS=19]

B=Before score, A=After score, CS=Change Score

8.2.4 Inner resilience

Inner resilience has been defined as an individual's ability to recover from or adjust easily to challenging or demanding situations [214]. The SOC-13 was used in this study to assess this construct. The measure is composed of three sub-scales; meaningfulness i.e. having a clear purpose, feeling satisfied and having a sense of meaning in one's life; comprehensibility i.e. uncertain, confused and mixed-up feelings and ideas, and feeling unsure about what to do; and manageability i.e. having feelings that are difficult to control, feeling unfairly treated, feeling let down or disappointed by others. Treatment effects were significant for one aspect of inner resilience with 'meaningfulness' having a medium effect size post programme. There was a medium effect size of borderline significance in 'comprehensibility' and a non-significant negligible effect size for 'manageability'. Improvements were also apparent in the young men's accounts (Table 8.8).

Young men provided examples of attributing meaning to their situation (congruent with the 'meaningfulness' sub-scale). This took the form of finding purpose in what they were doing, and feeling satisfied with what they had achieved (8/16). Re-evaluating their situation also featured in the young men's accounts (9/16). Some made reference to their own responsibility in how their future unfolds, using this insight to form future goals. Examples of comprehending things more clearly were evident (congruent with the 'comprehensibility' sub-scale). This was highlighted in accounts where they spoke about being better able to deal with uncertain, confused and mixed-up feelings (14/16); facing up to aspects of their past that they had previously pushed out of their awareness (6/16). On a few occasions participants suggested a change in sense of self (8/16), with increased reflection and possibly empathy towards the victims of their crime. With respect to the measure of 'manageability' divergence was evident between the quantitative, as measured by the 'manageability' sub-scale, and qualitative findings. Although quantitative results showed no change from baseline to post course, the young men did provide numerous examples of using their mindfulness training to help better manage situations. They frequently (11/16) described using the mindful practices to deal with current and past stressors such as incarceration, death of a loved one, difficult and negative emotional states, perceived injustice and traumatic memories (divergent with the 'manageability' sub-scale).

Table 8.8 Mapping results from the SOC-13 to qualitative findings

Quantitative Outcome	Description of concept	Qualitative (Divergence)	Qualitative findings (Convergence)
SOC: Meaningfulness (ES:0.35;p=0.03)	Meaning applied to a situation		When reflecting their experiences of the group some young men expressed a sense of satisfaction and optimism about being able to achieve something that he had not previously imaged would be possible (8/16): *"It made me think that there is stuff that I could do with myself that I've never been able to do before ... the first 2 sessions I was giving myself the goal to stay on this ... to help me with my negative thoughts and to me I think I've achieved them goals definitely so aye got my goals set out and I achieved them"* [PM03, Course 1, B:18, A:16, CS=-2] *"Feeling better for it aye, feel like I've actually, feel like I've done something since I've been in here so."* [PM17, Course3, B:17,A:18, CS=1] Re-evaluation of their situation seemed to have sparked an attitudinal shift for some of the young men (9/16): *"... it only take one hit to kill somebody know what I mean and that one hit could change your life completely man that's just made me realise that I don't want a life like that"* [PM06, Course1, B:19, A6, CS=-3]
SOC: Comprehensibility (ES:0.35; p=0.06)	How one understands their situation		A number of participants reported being able to approach aspects of their past that they had previously pushed-out of their awareness (6/16): *"there are certain thoughts from my past that I don't really like dwelling on. From doing this course I've kind of actually started sitting down and not dwelling on the past ... but like it did help me to face up to some of the stuff that I've done in the past ... helped me to look at certain stuff differently"* [PM08, Course1, B:13, A:17, CS=4]
SOC: Manageability (ES:0.007;p=0.96)	Ability to manage situations	Dealing with the difficulties associated with confinement: *"... especially in this kind of situation when were behind four walls and like frustration and just keep calm basically in a situation like that"* [PM30, Course 4,B:21, A:14, CS=-7] Others relayed a sense of accomplishment about being able to maintain calm when placed under stress: *"... because before ... I was a lot different before I mean I would get agitated all the time and I wouldn't know how to deal with it things like that. I was more of an angrier person ..."* [PM35, Course 5,B:17, A:12,CS=-5]	

8.2.5 Emotional regulation

The construct of emotional regulation depends upon individuals being aware of their emotional state, being able to understand what it means, and recognising that it is amenable to self-directed change [251]. In the current study the DERS was used, to assess multiple aspects of emotional dysregulation; (1) Non-acceptance of emotional responses (NAER), (2) Difficulties engaging in goal directed behaviour (DGDB), (3) Impulse control difficulties (ICD), (4) Lack of emotional awareness (LEA), (5) Limited access to emotion regulation strategies (LAERS), and (6) lack of emotional clarity (LEC). However, matching what the young men said to the specific construct defined on the DERS measures was not straightforward, as some definitions were abstract, difficult to interpret and were not specifically addressed on the interview schedule such as 'lack of emotional awareness' and 'emotional clarity'.

Difference between pre-and post-measurement on the DERS were not significantly different, however, there was a general trend for improvement and a medium treatment effect (ES: 0.32). On the DERS subscales improvements were also evident with small to medium non-significant effect sizes on five of the six subscales. Comparisons between quantitative and qualitative findings are shown in Table 8.9.

Despite the small treatment effects demonstrated on the DERS, many of the young men's accounts support enhanced emotional awareness and ability to influence emotional responses following the mindfulness training. Young men reported being more receptive towards and accepting of emotional responses (9/16) (congruent with the NAER sub-scale). They provided descriptions of being better able to regulate impulsive drives (14/16) (congruent with the ICD subscale). Based on the definition for the 'lack of emotional awareness' only two examples were apparent in the young men's narratives (congruent with the LAE sub-scale). There were many examples of the young men employing emotion regulation strategies (14/16) (congruent with the LAERS sub-scale). Only some examples of 'emotional clarity' were apparent in the young men's descriptions (congruent with the LEC sub-scale). Few young men provided clear examples of actively engaging in goal directed behaviour when faced with challenging or distressing emotions (convergent with the DGDB sub-scale). There were two accounts where the young men were unable to achieve a goal (i.e. complete the mindfulness course) due to personal barriers (i.e. the practices were too challenging and difficult) (divergent with the DGDB sub-scale).

Table 8.9 Mapping results from the DERS to qualitative findings

Quantitative Outcome	Description of concept	Qualitative findings (Divergent)	Qualitative findings (Convergent)
DERS: Difficulty regulating emotions			
NAER (ES:0.32; p=0.08)	Non-acceptance of reactions to one's distress		Young men described reflecting on situations (9/16), and being able to consider them in terms of their own needs: *"So any time after that, any time I got angry I just sit down and like think what's upsetting me…"*[PM08, Course1, No data available]
DGDB (ES:0.20; p=0.26	Difficulty achieving goal when experiencing negative emotions	Some experienced difficulty overcoming challenging emotions when trying to achieve their goals: *"…so I think me and the course just wasn't a fit but I think it was working on people, people were actually doing it and was nearly getting them to sleep and all that, clearly it was working on them but just not me, I just couldn't do it, I was trying right enough but I found it hard to do"* [PM22, Course 3, B:18, A:9, CS=-9]	A few young men spoke about feeling a sense of accomplishment having overcome personal barriers: *"I feel like I've overcame a barrier I never thought I would ever have got past, I feel like I have crashed through the brick wall so I have and it feels great so it does"* [PM27 Course 4, B:15, A:13, CS=-2] *"It was a bit hard but the fact that I accomplished it and I managed to complete it was pretty good because I'm not really good at completing stuff I usually do stuff and then drop out half way through …"* [PM31, Course 4, B13,A:15, CS=2]
ICD (ES:0.06; p=0.73	Difficulty refraining from impulsive behaviours when experiencing negative emotions		Frequent accounts demonstrated an ability to recognise mood changes more readily, taking precautionary steps to reduce the risk of it escalating: *"Before I done that [mindfulness course] I used to just sit and argue … get reports all the time but since I started that [mindfulness course] I've learned how to like start controlling it … I could've been arguing with them, swearing at them but I just choose not to do it anymore and just calm myself down before it gets out of hand"* [PM13, Course 2, No data available]
LEA (ES:0.34; p=0.12)	Lack of awareness and understanding of emotions		One young man described becoming aware of the transient (and potentially destructive) nature of their emotions: *"… your mind is like clouds, it's dark, grey and different kind of weather, and one minute you can be happy and next minute rain, thunder, it explodes …"* [PM30, Course 4, B:21, A:19, CS=-2]
LAERS (ES:0.25; p=0.21)	Difficulties accessing strategies to deal with negative emotions		The young men provided numerous examples (14/16) of implementing mindfulness strategies to help deal with negative emotions, *if you're heavy, heavy annoyed, just lie in your bed or sit in a chair, put music on just take big breaths and close your eyes'* [PM13, Course 2, No data available]. *"… have a clear mind, just step back and take a breath, take everything out of your mind and then we'll deal with everything..."* [PM35, Course 5, B:12, A:13, CS=1].
LEC (ES:0.22; p=0.39)	Unclear about emotion being experienced		Some young men seemed to be able to clearly discern the emotion being experienced: *'I get heavy stressed out on the phone if I've been let down for visits"* [PM19, Course 3, B12, A:13, CS=1]

8.2.6 Assessing what is relevant to the young men

Comparison of results from quantitative pre-post measures and qualitative interviews of young men's experience through triangulation revealed that some aspects of life, raised by the young men in the interviews, which mattered to them were not included in quantitative outcome measures or deductively sought via interview questions (such as relaxation, sleep and quality of relationships with family, peers and prison staff). These concepts were not measured in any of the scales used but where clearly important to young men (see Chapter 8 *Experience of the course*, section 8.1.4).

8.3 Conclusions

Interviews were carried out with 20 young men to explore their views and experiences of the mindfulness course. Findings were augmented by data from interviews carried out with forensic psychology staff and personnel officers in HMYOI, and the mindfulness teacher. A thematic analysis of the interview data and session notes from the mindfulness teacher identified four over-arching themes; *'coming along'*; *'experience of the course'*; *'effects of the course'*; and *'future use'*.

The young men's motivations for signing up to the course included curiosity, invitation from a staff member to take part, or simply attending to get out of their cell. One-third of the young men stated that they attended the course in an attempt to help with a specific problem, such as stress or difficulty with sleeping.

Mindfulness was a new concept for most, and was perceived as 'strange' and 'funny' at first by many of the young men, and even some of the prison staff. However, among those who stayed with the course, this perception changed as the young men began to experience benefits from taking part.

The body-scan and mindful-breathing appear to be acceptable and helpful, being commonly used by the young men to deal with difficulties out-with the mindfulness sessions.

Participants who completed the course described a range of positive changes, such as improved sleep, feeling more relaxed and less stressed, coping more effectively i.e. feeling more 'in control' of their thoughts, emotions, actions and behaviours, and having better relationships.

From those who dropped out from the course, reasons accounting for this included not seeing the point of the practices and finding being still difficult.

In general, the young men hoped to sustain their mindfulness practice after the course ended and when released back into the community. Perceived obstacles to continued practice on release included lack of time, discipline, the practice not being supported by their friends, family or local community, and the need to deal with competing obligations on release.

In general, comparison of data from quantitative and qualitative studies showed good agreement. Self-reported measures of impulsivity showed significant improvements, congruent with young men's experience, where they spoke about changes in their responses that can be seen as better managing different aspects of impulsivity. However, some young men found 'sitting still' challenging. In particular, one young man stated that the mindfulness training did not leave him equipped with skills necessary to manage his anger.

In terms of psychological well-being significant improvements were reported on outcome measures, congruent with the subjective changes (better able to manage stress and increased self-efficacy) noted by the young men. Enhanced mindfulness and reduced reactivity was reported on the outcome measures used in this study (CAMM and MAAS) and in what the young men said about the effects of the mindfulness course. There were a

couple of occasions where what the young man said did not match the definition of mindfulness. Quantitative improvements were seen on some aspects of inner resilience ('meaningfulness' and 'comprehensibility'), further supported by the young men's accounts. No change between baseline score and post-intervention score was detected on the 'manageability' sub-scale, yet the young men provided numerous examples of being able to manage difficult situations better. Self-reported measures of emotional regulation did not demonstrate significance, but did show a general trend for improvement. Emotional regulation played a key role in the changes described by the young men, with most employing internal strategies such as the breathing practice as a means of managing impulsive, distressing or uncomfortable emotional states. However, definitions of the different constructs used on the DERS measure were difficult to decipher and as such challenging to match up with the young men's accounts.

There were three experiences that the young men spoke of which had not been covered in the quantitative outcome measures: relaxation, sleep, and quality of relationships with family, peers and prison staff.

Having presented the findings from this thesis the next chapter will now discuss them in relation to other published research in this area.

Chapter 9 Discussion

This thesis has presented research to develop and undertake initial evaluation of a mindfulness-based course for young men, aged 18-21, housed in HMYOI Polmont. The final chapter discusses the research findings presented in previous chapters. Firstly, the findings are discussed in relation to other published research in this field. Secondly, the strengths and weakness of the research are considered. Finally, suggestions are made for optimisation and future research.

9.1 Comparisons with the published research

The key findings from the thesis in relation to the four research objectives are presented below and compared with findings from the related published literature.

9.1.1 Course Development

The first objective was to develop a mindfulness-based course that was appropriate for incarcerated young men. Course development was done iteratively, through close interaction between the mindfulness teacher, both supervisors and myself, using information drawn from the teacher's session notes and reflections from interviews with course participants.

Sustaining attention and interest from the young men was a recurrent problem. The young men frequently described the mindfulness practices as boring, lengthy and irrelevant. The mindfulness teacher reported that they were often restless and disengaged during sessions, finding it hard to focus for long periods. These findings resonate with those of Barnert et al. (2014), who found that the mindful meditation practices used in their study were received poorly by some incarcerated adolescents, who described meditating as challenging, unhelpful or simply did not like taking part [185]. Although not specific to forensic contexts, similar accounts have been reported among diverse medical

populations. For example, mindfulness practices have often been met with initial difficulties. This is especially the case where mindfulness is an unfamiliar concept, where the practices are perceived as too long or difficult to do, and where maintaining concentration is difficult [255]. Williams and Swales (2004) encourage anticipating and directly dealing with 'adverse reactions' likely to be stimulated as a consequence of engaging in a mindful practice. This is particularly relevant when working with vulnerable groups, to include self-focusing leading to the individual being overwhelmed by negative rumination, memories and/or flash backs from previous traumas [256].

In contrast to the current study, a study by Himelstein et al. (2012) reported participants describing a sense of excitement about attending the weekly classes, curious about the activities that would be presented [178]. It could be that Himelstein called upon his own prior experience, having been incarcerated during his adolescent years, with course content better matched to the participants' needs, or that the participants differed in terms of educational attainment or cultural values from those in the current study. Another difference from the current study was that participants were selected and referred to this course by court order and/or probation camp staff, an important potential source of selection bias. Moreover, as the research interviews were conducted by the course facilitator (Himelstein), interviewees' may have felt a need to report more positively than may have been the case, had a different independent researcher carried out the interviews.

Problems with disruptive behaviour and aggression were prevalent during courses in the current study. This was problematic for the teacher and for group cohesion. The recurrent problem with disruptive behaviour meant that working guidelines and group agreements were introduced from course three onwards. However, on a few occasions some individuals still had to be asked to leave the course. Much time was invested in trying to put the young men at ease by creating a safe and relaxing environment. Problems with disruptive behaviour were similarly reported in a pilot RCT implementing MBSR for traumatised young people (aged 14-21 years) in foster care [257]. As in the current study, Jee et al. (2015) reported disruptive, aggressive and volatile tendencies among group

participants [257]. In the Jee et al. (2015) study this led to a number of adverse events resulting in three young men being removed from their courses. The researchers' cited a lack of access to participants' histories as an issue, and a high prevalence of early childhood adversity as a barrier for peer interaction and trust. Safety of both facilitators and participants was repeatedly emphasised; the researchers' reported that on several occasions participants brought weapons into the groups, as a form of '*protection'*.

In this current study, the courses were difficult for the mindfulness teacher to deliver by himself due to the need to manage disruptions and remain vigilant about group safety. Although a second facilitator to help with group management was suggested by the mindfulness teacher and agreed in principle by HMYOI Polmont, this proved difficult to arrange and was not operationalised. Another question that arose was whether having some form of clinical training of the mindfulness teacher was necessary, given the recurrent issues with attentional difficulties and problematic mental health. Crane et al. (2012) emphasise the importance of mindfulness teachers being appropriately trained and qualified when working with specialised populations [258]. There are currently no statutory regulations regarding qualifications, but a UK voluntary code of conduct exists (http://mindfulnessteachersuk.org.uk/pdf/teacher-guidelines.pdf) regarding the desirable level of training, supervision and practice pathways for mindfulness teachers.

Numerous modifications were made to the mindfulness course through the seven iterations. In the end, sessions were shortened to 90 minutes, the meditation practices were also shortened, and the mindfulness teacher introduced simpler, fun and interactive ways of learning and sustaining attention. In a book specifically written for clinicians teaching mindfulness to at-risk populations, Himelstein (2013) recommends integrating new and varied modes of learning, keeping sessions 'lively', 'topical' and 'interactive'. He noted such variety to be especially relevant in maintaining the young peoples' attention and interest, especially as boredom is seen as the *"arch nemesis for many adolescents"* p. 126 [232].

The mindfulness teacher in this current study sought to captivate the interest of the young men by suggesting a 'challenge' to them (the 100-minute challenge), and by framing mindfulness training as being like a 'workout for the mind' ('inner strength training'). He tried to make the course content more relevant to the young men, increasingly turning attention to how they could use the mindfulness practices to address their particular problems, such as anger, frustration and relational conflict. Furthermore, the programme was lengthened from eight to ten weeks to allow more time to learn these skills during the shorter sessions. Although the form of the course changed substantially, the three core features of MBSR (i.e. awareness of the breath, the body scan, mindful movement) were retained throughout.

Similar key developmental adaptations are highlighted in the literature for interventions tailored for children and young people. These have included:

1. Shorter session lengths [145, 259]. Goldstein et al. (2007) also suggest that shorter skills training techniques should be used with adolescents experiencing difficulties with emotional regulation, as such individuals are likely to have immature executive skills at this stage of development [260].

2. Shorter formal practices i.e. the sitting practice and body scan being a maximum of 20 minutes [145, 259].

3. Clearly defining 'mindful' concepts. Studies have described the need to simplify the theory of mindfulness for young people into easily understandable concepts and to include visual aids [261, 262]. Others' emphasise the importance of repetition for young people, to help facilitate lasting change [145, 261]. Semple et al. (2010) suggest that more emphasis should be placed on sensory observation (i.e. bodily sensations), rather than abstract experiences (i.e. thoughts), as bodily sensations can be more 'grounding' and 'tangible' for young people [145].

From the findings from this current study, along with that from the related literature, it is clear that the learning styles and preferences of the young men have to be taken into account in delivering mindfulness training. In 2013, the Young Offenders Survey (n=267) by the SPS at HMYOI Polmont found that the preferred ways of learning of young men in the institute were through sports (58%) and practical workshops (57%) and that creating a relaxed learning environment was important. In the current study, the young men struggled with the psycho-educational components of the course i.e. those parts that were more theoretical, which they often felt were less relevant to them. On the other hand, the young men reported more engagement and benefits with the body-based practices, such as the body-scan or the breathing practices.

The 'bottom-up', somatically-based mindfulness practices appear to have helped the young men relax more in the current study. The body scan is designed to improve sustained attention and attention switching. Being based in somatic experience, such practices might be less challenging for the young men than a more cognitive approach. Some evidence suggests that immaturity in pre-frontal emotional control mechanisms is prevalent in young people with a history of social adversity, where connections between the pre-frontal cortex and lower axis brain structures, such as the amygdala and hippocampus, are less developed [263]. Executive skills, including the regulation of emotions via attentional control, are also thought commonly to be deficient [60]. These factors, although speculative, might explain the better engagement by the young men with the somatically-based practices, and less engagement with more cognitively demanding material.

In the current study, 'home practices' were based on those in standard MBSR (CDs with led practices such as the body scan, the sitting practice, and mindful movement; as well as continued practice of techniques covered in class). The mindfulness teacher initially recommended these and sought informal and written feedback from the young men on levels of practice (duration) and participant experiences. However, by the end of the third course it had become apparent that the young men did not record their levels of 'home

practice', and did not provide much feedback to him on their experiences. This discouraged the mindfulness teacher from gathering this information in subsequent groups.

However, despite no longer collecting data on home practice adherence, the young men were still encouraged to continue with these practices. From the young men's qualitative accounts adverse reactions to the CDs were common, most giving the impression that they did not maintain formal practice outside of the sessions; instead seeming to integrate what they were learning into their day-to-day activities informally. In exploring the effects of home practice on outcomes, Carmody and Baer (2008) reported that time spent doing the home practices was significantly related to improvements in mindfulness, well-being, perceived stress and symptoms of depression, anxiety, hostility, paranoia and psychoticism [264]. They also reported that the more people practised, the higher their level of mindfulness was post-course, and the better their psychological functioning and wellbeing. Further, recent evidence from a RCT studying mindfulness for incarcerated youth (n=264) found that, within the mindfulness arm, those who completed home practices during the course had stable improvements post-course in attentional task performance, whereas those not completing home practices did not [60]. In the current study, mindfulness and mental wellbeing both improved significantly, but it is impossible to say if more time spent doing the 'home practices' would have led to even greater benefits. In fact, the role home practice plays in achieving and maintaining better outcomes is still in dispute. De Vibe et al. (2012) stated in a meta-analysis, that positive effects on mental health outcomes, including anxiety, depression, stress and quality of life, were not particularly influenced by self-reported home practices.

McNeill (2012) postulates that prison-based interventions need to attend sufficiently to the motivations and interests of the individuals they are targeting [94]. In response to the various challenges that arose during the delivery of the courses in this study, the mindfulness teacher responded reflexively to the complex needs of the group. As previously discussed, this meant tailoring the practices to the young men, in some cases

using more simple language and concepts. Crane et al. (2012) endorse such flexibility in the teaching of mindfulness, encouraging researchers to resist the temptation to define the intervention in a 'static' sense, and to instead afford flexibility and freedom of expression, whilst retaining rigour within its specific context [258]. According to McNeill (2012), programmes deriving from the RNR model, with an emphasis orientated towards criminogenic needs and risk reduction (i.e. for the 'public good') can fail to address the legitimate goals and aspirations of the young men, fail to engage them adequately, and fail to establish the trusting and therapeutic alliances necessary for positive change [94]. McNeill (2012) cautions not to place too much emphasis on criminogenic needs to the exclusion of other needs that young offenders have, which also require attention. As previously outlined, in this current study the mindfulness teacher noted how isolated and fearful the young men were, finding 'letting their guard down' a challenge. He sought to foster an attitude of non-judgemental awareness and value, and the recognition of commonality in their suffering.

9.1.2 Recruitment and retention

The second objective of this research was to determine recruitment and retention rates to the mindfulness course and research study. Understanding the factors that influence recruitment and retention is important if a mindfulness course is to be made accessible and acceptable to under-served populations, where reach can be low and levels of attrition high [265]. Analysing recruitment and retention data in this challenging context can help develop better recruitment strategies and determine whether research is feasible. Recruitment and retention to the course and to the evaluation are considered in turn.

Recruitment to the course: Recruiting participants to take part in the mindfulness courses proved to be challenging, necessitating a number of modifications to the recruitment strategy. In total, 200 young men were approached to take part. Ninety-five (47%) declined, 34 (17%) were unable to commit due to scheduling conflicts, eight (4%) did not meet the eligibility criteria, and one (1%) was transferred off-site. Sixty-two

(31%) young men expressed an interest, of whom 52 (26%) attended the training. Rates of recruitment, including both refusal and consent, were not reported in any of the other studies of mindfulness for incarcerated young men (see Chapter 3 *Scoping Review*). As such it unclear how the figures in this study relate to others.

Retention on the course: Non-attendance was commonplace, drop-out rates were high, and course completion rates low in the current study. Twenty-five out of fifty-two (48%) young men completed a full course (defined as ≥ 50% attendance); fifteen (29%); attended six or more sessions, and ten (19%) completed all of the sessions. Poor attendance and high dropout are commonly reported problems among other studies assessing the use of mindfulness courses for incarcerated populations. However, as outlined in Table 9.1, retention on the course in this study was particularly poor (48%) in comparison to other studies using mindfulness in forensic settings (range 60-90%).

Table 9.1 Course retention rates in incarcerated populations

Study (country)	Study design	Intervention (sample size)	Completers (%)	Reason (n)
Murphy, 1995 (USA)	RCT	MBSR (n=35)	90%	Asked to leave (3) Released (1)
Barnert et al. 2014 (USA)	CT	MBA (n=29)	90%	Released (6)
Himelstein et al. 2011 (USA)	Pre, post	MBSU (n=60)	80%	Released (12)
Samuelson et al. 2007 (USA)	CT	MBSR (n=1,953)	70%	Not reported
Flinton, 1998 (USA)	CT	SMP (n=62)	70%	Administrative issues (16)* Released (4)
Perkins, 1998 (USA)	RCT	MBSR (n=232)	63%	Released/transferred/ WRIT± (32) Dropped out (39)
Himelstein, 2012 (USA)	Pre, post	MBA (n=47)	60%	Released (15)
Current study	Pre, post	MBI (n=52)	48%	DNA (12) Withdrew (7) Asked to leave (5) Joined work party (2) Placed in segregation (1)

Study design: RCT = Randomised control trial CT = non-randomised control trial
Interventions used: MBSR = Mindfulness-based stress reduction MBA = Mind Body Awareness
MBSU = Mindfulness-based substance use SMP = Structured meditation programme
* A whole cohort was removed from the study as one of the camps failed to adhere to the study requirements removing participants from the group and adding new members who had not completed baseline measures.
± No specification of WRIT was provided. DNA = Did Not Attend. n = numbers

Studies evaluating the effectiveness of MBCT in clinical populations [24, 126, 266] have found that non completers tend to drop-out of the course in the early stages. In a study specifically evaluating attrition from MBCT, Crane et al. (2010) reported that from the 33 participants randomised to MBCT, 23 (70%) were considered 'completers', having attended four or more sessions and 10 (30%) were considered 'non-completers' [266]. The mean (SD) number of sessions attended by 'completers' was 8.09 (1.20), as compared to 1.50 (1.23) for 'non-completers'. The current study found a similar trend among non completers (27/52: 52%), where 15/27 (56%) withdrew very early in the course (prior to 3rd session) and 12/27 (44%) did not attend a single session.

It is unclear from the literature how many sessions need to be attended in order for participants to derive benefit. For example Hofmann et al. (2010), reviewed 39 MBI studies (RCTs, controlled trials, and observational studies) delivering mindfulness for a range of health problems (n = 1,140) [23]. Effect sizes reported suggested that mindfulness-based therapy was moderately effective for reducing anxiety (Hedges' g = 0.63) and depression symptoms (Hedges' g = 0.59) from pre- to post- treatment in the overall sample. The authors noted that effects were maintained at follow-up but notably were not associated with number of treatment sessions attended. This is similar to the findings in the current study. However, De Vibe et al. (2012) reported in a systematic review, including 26 RCTs, that effect sizes positively correlated with course attendance [141].

Reasons for poor attendance and high drop-out from the mindfulness course in this study were related to onsite organisational or logistic issues (such as booking errors or staff oversights). Flinton (1998) cited similar reasons for attrition [175]. The transient and unpredictable nature of prison life, where inmates frequently move location or are released, is another commonly cited reason for high levels of attrition from mindfulness courses [156, 183-185]. Further, a recent systematic review of Buddhist-derived interventions (BDIs) noted potential factors impeding the successful integration of these interventions in forensic settings [150]. Problems generic to all prison-based interventions

(beyond simply BDIs) included (1) the transient nature of prison life (transfers or parole), (2) noisy environment and shortage of 'quiet space', and (3) general security considerations and onsite restrictions. Those factors particular to BDIs included transcultural difficulties of assimilating Eastern meditative practices into Western culture [148], participants being resistant about engaging with introspective or contemplative practices, and the specific competencies and training required by facilitators to deliver these programmes [150].

It is possible that age and gender may have contributed to the high attrition reported in the current thesis. In a review of factors associated with attrition from standard eight-week MBCT, Crane and Williams (2010) reported that participants who dropped out of treatment were significantly younger than those who remained in treatment ($U=55.00$, $Z = -2.35$, $p=0.02$) [266]. Kabat-Zinn and Chapman-Waldrop (1988) reviewed adherence in an eight-week MBSR programme, delivered over a two-year period finding females more than twice as likely to complete the programme than their male counterparts [267].

Stringent selection criteria for psychological interventions can significantly reduce dropout rates and contribute to better participant outcomes [267]. However, stringent selection criteria may also exclude individuals most in need of help. Kabat-Zinn and Chapman (1988) encourage the inclusion of a large referral pool and relatively 'non-selective criteria' when recruiting potential participants. Such an approach would need to be used cautiously in relation to the current study.

Another reason for course drop-out in this study was the perceived low status of the mindfulness course compared with others on offer within the YOI. Other courses were often incentivised, with remuneration or improved parole reports available on completion. Furthermore, there was a stigma associated with the course being connected with the mental health service. Delivering adapted MBSR to traumatised young people in care, Jee et al. (2015), reported that focusing on mental health stigmatises views among potential participants, negatively impacting recruitment [257]. Based on this, they

subsequently advertised their mindfulness course as a social and fun group, where young people in care could gather together, listen to talks about varied topics, receive a weekly meal, and get a payment of $100 for completion. Attendance on their first course was 100%, and for course two (those who had acted as controls for course one) it was 84%.

The *Young Offenders Survey* conducted in 2013 at HMYOI Polmont (n=267) by the SPS explored factors that might enhance participation on programmes on offer within the Institute. Low attendance had been a common problem [68]. Survey respondents said that they would be more likely to participate if they were '*gettting a reward or privilege*' (63%); '*it was of practical use to them' (41%)*; if they had more information about the programmes (39%); and if they received encouragement from staff (26%), or family (17%). The most frequently attended programme at HMYOI Polmont was a 'work party' i.e. learning practical or craft skills (attended by 80%), perhaps reflecting a perceived need among the young men, ahead of being released back into the community.

In this current study, a lack of familiarity among the prison staff as to what mindfulness was and how it might help the young men, along with uncertainty as to how it sat with other programmes on offer, may have limited 'buy-in' from the staff. Previous studies have highlighted staff involvement and support as crucial factors is ensuring participant retention [268, 269]. Qualitative research also suggests that addressing participant expectations early on can improve understanding regarding the purpose of mindfulness training and subsequent engagement [270]. To help address participant expectations and improve retention, Crane et al. (2010) promote the inclusion of an extended pre-class interview [266]. In this current study taster sessions were introduced to improve understanding and engagement with the mindfulness course. However, no obvious improvements to course retention were seen.

Retention in the evaluation: Forty-eight young men completed outcome measures at baseline. Follow-up at post-intervention was relatively good (73%; n=35/48). Recruitment rates of 80% or over are generally regarded as gold standard. At this stage

reasons for non-completion of outcome measures were reported as not being brought to the activity centre (11%), attending a work party instead (11%), refusal (9%) and the session clashing with a family visit (3%).

Outcome measure completion dropped considerably at three-month follow-up (45.2%; n=14/31), with reasons for non-completion being released/transferred (32%; n=10), attending a work party (9.8%; n=3), not marked on the booking form (6.5%) or staff being unable to locate the participant (6.5%; n=2). Rates of retention in the evaluation were not reported in any of the other studies of mindfulness for incarcerated young men (see Chapter 3 *Scoping Review*). However, two controlled trials with adult offenders (one exclusively male, the other mixed gender) reported on outcome measure completion. Perelman et al (2012) described a 58% return of outcome measures immediately post-intervention, dropping to 44% at one year follow up; no information was provided to account for these findings [156]. Bowen et al. (2006) reported a 53% rate at three-month follow-up, with reasons for non-completion given as participants no longer being in prison [181].

In their review '*Maximizing recruitment in community based trials*', Davis, Broome and Cox (2002) suggested that successful retention should be based on the integration of multiple strategies, to include emphasising study significance, maintaining consistent and regular contact with study participants, and providing incentives for continued participation [271]. In addition, the use of logos on all correspondence and advertisements can reinforce participants' familiarity with the course/study. In the context of HMYOI Polmont, most of these suggestions were unavailable, being outwith the control of the researcher. Institutional restrictions limited regular contact with the young men, did not allow for incentives that the young men valued (such as favourable parole reports), and the mindfulness teacher felt that the study was not adequately promoted by the HMYOI staff, with many of the young men coming along with very limited understanding of what was involved. As a means of communicating to the wider team 'flash card reports' were prepared and distributed, at four-month intervals. A wider

distribution may have been more effective in terms of optimising recruitment and improving awareness of the mindfulness-based intervention being delivered in-house. However, as a researcher external to the YOI, I did not have access to the HMYOI Polmont staff email database nor did I know if using the database, for this purpose, was a viable option. Abrams and Hyun (2009) also highlight lack of control by a research evaluation team over the setting as a barrier to recruitment and retention [272].

9.1.3 Outcome evaluation

The third objective was to investigate the feasibility of data collection and potential effectiveness of the mindfulness course, assessed by outcome measures. As Chapter 5 *Recruitment and Retention* and Chapter 6 *Outcome Evaluation* have highlighted, the low level of missing data in self-completion questionnaires (ranging from 0-8%), relatively high retention post-course (73%), general level of apparent accessibility of the measures to participants, and good internal consistency (overall Cronbach's alphas .75 to .93) suggests that it is possible to collect such data in this context (although, as evident from Objective 2, longer term follow-up may prove difficult).

In addition, young men who attended the mindfulness course and completed outcome measures pre- and post- course showed statistically significant improvements in impulsivity, mental wellbeing, mindfulness (as measured by the CAMM, but not by the MAAS) and one aspect of inner resilience (meaningfulness). Although all measures showed a positive trend from taking part in the mindfulness course, no significant effects were demonstrated for emotional regulation or for two aspects of inner resilience (comprehensibility and manageability). There were no consistent independent predictors of outcome other than baseline outcome scores.

9.1.3.1 **Impulsivity**

In the current study there was a significant pre-post reduction in impulsivity as measured by the TCS and BIS-11. Improvements in impulsivity have also been directly recorded in

other studies implementing a mindfulness-based intervention within a correctional setting (n=3) [178, 183, 185].

Using Mind Body Awareness (MBA), a derivative of MBSR, in a young offender institute, Himelstein (2011) assessed self-reported impulsivity, perceived drug risk and self-regulation [178]. Analyses revealed a significant decrease in impulsivity using the TCS at post-intervention (ES:0.43; $p<0.01$). Himelstein's (2011) findings are comparable to those in the present study, with the current study reporting a higher effect size (ES:0.72; $p=0.001$).

Barnert et al. (2014) examined the experience of incarcerated young males (n=29) who participated in a 10-week MBA programme and a one-day meditation retreat [185]. Measures of impulsivity did not reach statistical significance (ES:0.20; $p=0.30$), although they did show a positive trend from baseline to follow-up, suggesting some potential benefit.

These two studies [178, 185] both included the Teen Conflict Survey (TCS) in their analyses. In the former the mean score for impulsivity decreased from 9.93 to 8.72, whilst in the latter the score decreased from 11.5 to 10.9. In the current study, which used tailored MBSR, a similar trend was noted, where higher baseline impulsivity scores were apparent, and bigger treatment effects were demonstrated, the mean score reducing from 12.4 to 10.1. These findings tend to suggest that the population of young men included in this study started with higher levels of impulsivity. In addition, this current study used the BIS-11, which is frequently used within prison settings. Scores on the BIS-11 dropped from levels indicative of high impulsivity (76.7) to within normative values (<72) following the mindfulness training.

In a RCT, Murphy et al. (1995) examined the effects of MBSR on reducing anger, impulsivity and aggression with an incarcerated male population [183]. Thirty-one participants (ages 17 to 46) with a history of alcohol abuse and aggression were randomly

assigned MBSR or Progressive Relaxation Training (PRT). There were no significant reductions in self-reported anger or impulsivity.

Besides the quantitative reductions in impulsivity found in this current study, the young men described a shift in how they related to their thoughts, feelings and behaviour. They attributed this change to the 'breathing techniques' and 'body scan' taught on the course. Shonin et al. (2013) has suggested that increased breath awareness, as a component of mindfulness, is particularly relevant in the forensic setting, when teaching ways to mange and regulate aggressive impulses [150]. He points out how breath practices directly access the autonomic nervous system (reducing sympathetic arousal), facilitating a less impulsive and aggressive response.

9.1.3.2 **Mental wellbeing**

Numerous studies have shown that incarcerated young men experience high levels of mental health problems [66, 273], with depression, anxiety, and self-harm being particularly common [65]. Moreover, there is considerable evidence highlighting that these young men are not receiving the necessary treatments for these conditions [65, 66]. In this current study, significant improvements in mental wellbeing were recorded on the GHQ-12 (ES:0.50; p=0.003). This corresponds with other studies which report significant reductions in stress [176, 184] and anxiety [173, 175], besides significant improvements in subjective wellbeing [174].

Improvements in mental wellbeing were recorded in this current study, where levels of 'case-ness' (GHQ-12 score >/=3), reduced from a number of 25/29 at baseline, to 4/29 post-course. These findings suggest that those with mental health problems may derive particular benefit from mindfulness training. In the current study regression modelling showed that psychological distress was an independent predictor for improved inner resilience. Outwith the forensic setting, a recent meta-analysis (n=1,914) examining the utility of mindfulness for young people between the ages of 6-21, reported that youth

psychiatric populations show higher effects (ES:0.50) compared with non-clinical populations (ES:0.20) following mindfulness training [27].

Other studies evaluating mindfulness-based courses in incarcerated populations have demonstrated significant reductions in measures of anxiety [173], stress [176, 184] and depression [155, 173]. However, only Himelstein et al. (2012) and Flinton (1998) demonstrated these changes in incarcerated young men [175, 184]. In addition, Khurana and Dhar (2000) reported significant improvements in subjective wellbeing among incarcerated male adolescents (n=45) who attended VM training ($p<0.01$) [174].

Mental health benefits from mindfulness training have also been reported among incarcerated adult males [155] and females [176]. One other study in incarcerated adults did not specify gender [173]. A small RCT (n= 24) reported significant within group improvements in levels of depression with incarcerated Taiwanese adult males (ES:3.53; $p<0.05$), but no control group comparison was possible as the measure for depression was only administered to those in the treatment group [155]. In addition, results from a preliminary study (n=120), by Chandiramani et al. (1998) showed a significant reduction in anxiety (HAS) and depression (BDI) among a subgroup (n=21) of those diagnosed with a psychiatric illness [173].

9.1.3.3 **Mindfulness**

In this current study, mindfulness improved significantly on one measure (CAMM), but not the other (MAAS), where it instead showed a positive trend towards a beneficial treatment effect. The CAMM was designed for adolescents, whereas the MAAS was not, which may account for the discrepancy in findings.

Two previous studies examined the use of MBA for incarcerated young men, measuring mindfulness using the MAAS [184, 185]. Neither noted significant improvements. Mean score comparisons with the current study were not possible, as Barnert et al. (2014) [185]used an adapted version of the MAAS, and Himelstein (2012) did not compute

mean values, giving a sum score instead [184]. For the purposes of comparison, mean MAAS scores in the current study were converted to a sum score. Himelstein et al. (2012) reported a sum score of 59.6 pre-intervention, rising to 63 post-intervention. In the current study mindfulness scores were 55.2 at baseline, rising to 59.3 post-intervention. These findings suggest that the population of young men in this present study started with lower levels of mindfulness but demonstrated improvements of comparable magnitude to the young men in Himelstein et al. (2012).

A controlled trial [156] delivering VM to adult males (n=127) assessed mindfulness using the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). The researchers reported significantly enhanced levels of mindfulness (ES:3.68; p=0.02) immediately post-intervention, but this effect was not maintained at one-year follow-up.

In addition to the quantitative improvements detected, qualitative interview data, from the present study, revealed that some young men reported being more aware of and attuned to their thoughts, feelings and behaviours.

The MAAS is designed to measure trait mindfulness, the CAMM day-to-day present-moment awareness. How such constructs translate into improved wellbeing and mental health remains unclear. However, in diverse populations (clinical and non-clinical), mediational analyses suggest that increased mindfulness is associated with diminished depressive relapse rates [24], decreased stress [274] and improved wellbeing [275]. In this present study, baseline scores for the MAAS correlated positively and significantly with inner resilience, and negatively and significantly with impulsivity, psychological distress and difficulties with emotional regulation. At baseline, the CAMM correlated positively and significantly with inner resilience, and negatively and significantly with impulsivity and difficulties with emotional regulation. This suggests that higher levels of mindfulness may be associated with increased inner resilience and decreased impulsivity, emotional difficulties, and psychological distress.

Correlations between the two mindfulness measures in this study were significantly positive ($r=.51$, $p<0.01$). This is in accord with other published studies, where correlations between mindfulness measures range from .31 to .67 [249]. Of the two measures of mindfulness, the age-appropriate CAMM correlated more strongly and positively with inner resilience (SOC-13) ($r=.62$, $p<0.01$) than the MAAS, and more strongly and negatively with psychological distress (GHQ-12) ($r=-.53$, $p<0.01$) and impulsivity (TCS) ($r=-.52$, $p<0.01$).

As mindfulness is proposed to facilitate enhanced awareness and acceptance of emotions, it was anticipated that this construct would correlate negatively with the DERS. This was the case for both the CAMM ($r=-.48$, $p<0.01$) and the MAAS ($r=-.50$, $p<0.01$), similar to results reported by Baer et al. (2004), where correlations between a selection of mindfulness measures and the DERS ranged from -.34 to -.63 [249].

9.1.3.4 **Inner resilience**

The 'What Works' literature suggests offenders are less likely to re-offend if they manage to acquire a sense of agency and control over their own lives, as well as developing a more positive outlook on their future prospects [96].

In the current thesis, a significant improvement in inner resilience was shown on only one aspect of resilience ('meaningfulness'). On the other two aspects of resilience, there was a medium improvement of borderline significance in 'comprehensibility' and a non-significant negligible effect on 'manageability'. Quantitative improvements resonated with qualitative findings, where participants spoke about reflecting on their values and behaviours prior to imprisonment, why they were incarcerated, or what they hoped to do upon release. On a few occasions participants suggested a change in sense of self, with increased reflection and possibly empathy towards the victims of their crime.

In other studies, Chandiramani et al. (1998) reported that prisoners (n=108) showed enhancements in their sense of hope immediately after a VM intervention (ES:0.23;

p<0.001) and again at six-month follow up (ES:0.35; p<0.01); as well as wellbeing immediately post-VM (ES:0.78; p<0.001), which was maintained at three-month (ES:0.83; p< 0.01) and six-month follow-up points (ES:0.97; p <0.01) [173]. Gender was not reported. Improvements were also detected in levels of helplessness immediately post-VM (ES:0.47; p<0.001), being maintained at both three-month (ES: 0.70; p<0.001) and six-month follow up (ES:0.70; p<0.001). Sumter et al. (2009) conducted a mindfulness course for female detainees (n= 33) and noted from qualitative findings post-intervention that the meditators were more 'hopeful' about the future than those assigned to a treatment as usual (TAU) [182].

Prison life isolates individuals from their family and friends, reduces autonomy and sense of engaging in purposeful activity [79, 82, 83, 276]. Staff in HMYOI Polmont highlighted that gang factions were a common occurrence. Conflict, including physical violence, repeatedly featured in reasons for imprisonment, but also commonly occurred within the institute. On one occasion in the present study, a young man brought a knife to the course. Furthermore, the mindfulness teacher described the young men as frequently being highly vigilant and unable to relax in the group setting. Having inner resilience under these circumstances is likely to be difficult. In the present study, there was no change from baseline to post-course on the measure of 'manageability'. Manageability refers to the degree to which a person feels a sense of control over their situation [214]. An environment that is punctuated by real and potential threats on a daily basis, where social support is lacking, and tension high, may help to explain why no change was noted on the subscales for 'manageability'.

Despite this, qualitative feedback from the young men who completed the mindfulness training suggested improved ability to manage stress, improved self-control and a greater sense of community with peers.

9.1.3.5 **Emotional Regulation**

Recent neuroscientific models for the mechanisms of action for mindfulness suggest that emotion regulation is a key component [109, 277]. Studies show that mindfulness meditation training is associated with positive changes in emotion-related brain activation [278].

In this current study, as detailed above, there were statistically significant improvements in impulsivity following mindfulness training. Baseline impulsivity correlated strongly with baseline difficulties in emotional regulation, but despite this relationship, following the mindfulness training there were no significant improvements on the DERS, which measures non-acceptance of emotional responses, difficulty engaging in goal directed behaviour, inability to refrain from impulsive behaviour, lack of awareness and understanding of emotions, limited emotional regulation strategies and lack of emotional clarity.

However, scores for the DERS did show a positive trend for improvement (ES:0.32). There was a relatively small sample size in the current study, so non-significant results may be due to insufficient power. Some researchers suggest adjusting the alpha levels to account for this (e.g. using a cut-off of 0.10 rather than the traditional 0.05) [279]. If a level of 0.10 had been applied in the current study then the DERS would have been classified as significant as the 'p' value was 0.09.

The largest improvements on the DERS in this current study were on the sub-scale for 'non-acceptance of emotional responses'. Qualitative reports from the young men support this finding, where descriptions were given suggesting that they found the mindfulness practices useful when troubled with distressing emotions or in situations where they felt a sense of unfairness. The next biggest improvements were noted on the 'lack of emotional awareness' subscale. Gross et al. (2011) suggest that 'explicit' emotional regulation strategies depend upon awareness of one's emotions and of the desire to change them

[280]. Again, qualitative findings suggest that some of the young men felt more aware of their emotions, able to observe them and to choose how to respond.

Despite the non-significant quantitative findings, the reading level for the DERS was age-appropriate for the young men in this study (Flesch-Kircaird Grade level = 5.3, aimed at 10-11 year olds), and demonstrated good psychometric properties in this study (Cronbach alpha .93) and others [217] (Chapter 7 *Outcome Evaluation*). However, the DERS was not designed for use in incarcerated youth and has a long and complex format (36-items). The young men reported some comprehension difficulties and annoyance over the repetitive nature and length of this measure. In addition, it has a focus on reflective thoughts on emotions and may not cover less cognitively-based methods of emotional regulation (such as somatically- based techniques and/or relaxation). As such, the DERS measure could be redundant in this context.

9.1.4 Experience of the course

The final objective of this research was to explore the young men's experiences of the course. During qualitative interviews, the young men expressed their initial wariness of the course, thinking it *'kind of new-agey'* or perceiving the course as '*funny'*, '*strange'* or '*weird'*. However, they said their experience changed as they got used to the course. They described feeling better, more relaxed, having improved sleep and better relationships with family, peers and staff, besides feeling better able to manage their emotions and behaviour. Some said they wanted to keep up the practice, but also recognised it might be difficult away from the course. On the whole, responses from staff complimented these views, suggesting that in some cases participants seemed calmer. However, one staff member said that he could not necessarily relate improvements to participation in the mindfulness course.

Comparison of data from quantitative and qualitative sources in this current study generally showed good agreement between the findings from both approaches. However, during interviews, the young men raised three benefits that were not captured in outcome

measures. These were sleep, relaxation, and quality of relationships (with family, peers and staff).

Improved sleep, feeling more relaxed and less stressed, coping more effectively and relating better with others (peers, staff, and family) were the most frequently reported benefits in this study, and are similar to those described in other related studies [177, 179, 180, 185, 188]. In non-offending adult populations, a systematic review reported that mindfulness training led to improved wellbeing, in part by improving sleep quality, likely through reduced stress and anxiety, and less difficulty 'tuning out' from internal mental conflict [281]. In adolescents with a history of substance abuse, Bootzin et al. (2005) reported that participants completing four or more (of six) MBSR sessions showed improved sleep and a reduction in substance abuse problems at 12-month follow-up [282].

Only four other studies have examined the experiences of incarcerated young men taking part in mindfulness-based courses. Through thematic analysis of 10-minute one-to-one interviews, Himelstein et al. (2011) investigated the use of MBA among male adolescents (n=32; age range 14-18) [188]. Four main themes were described, including (1) increased wellbeing, (2) improved self-regulation, (3) increased self-awareness and (4) an accepting attitude towards the course. Some clear similarities to the themes in this current study were evident, with participant reports suggesting that the young men felt less stressed, more relaxed, and had improved sleep. The breathing practices were described as particularly helpful for dealing with the arousal of anger in this current study, and the body scan for inducing sleep.

Young men who offend are often described as 'treatment-resistant', meaning that finding an approach that works and is acceptable to them can be difficult. Himelstein et al. (2012) reported openness to mindfulness and an accepting attitude towards the course among the young men who took part in their study. In the present study, such positive reports were not so evident. Many young men reported not liking the course, or the practices.

However, as highlighted previously, once the initial perceived ‘strangeness’ of the course was overcome, some young men did seem to accept the mindfulness approach and spoke favourably about their experiences.

In another study, Himelstein (2011) tested MBSU among young men (n=48), aged 15-18 years, who had a history of substance misuse [178]. Three themes emerged from thematic analysis of focus groups, including (1) receptivity to the course, (2) appreciation for the mindfulness teacher, and (3) learning about drugs. The young men taking part in MBSU described a sense of commonality and solidarity with their peers who they saw were also suffering. They also reported a sense of appreciation for the mindfulness teacher, especially in regard to perceived interest, care and concern demonstrated towards them. This resonates with descriptions from some of the young men in the current study who described appreciating the attitude and approach taken by the mindfulness teacher.

Barnert et al. (2014) also studied the use of MBA in young men (n=29), aged 14-18, finding six major themes from thematic analysis of focus group data [185]. These were (1) enhanced wellbeing, (2) expanded self-awareness, (3) increased self-discipline, (4) resistance to meditation, (5) increased social cohesiveness, and (6) future meditation practice. Once again, the practice of breath awareness was described as particularly helpful for dealing with stressful situations and emotional arousal. Another finding in Barnert et al. (2014), reflecting some descriptions in the current study, was that the young men described how a newfound ability to walk away from confrontation had evolved after taking part in the MBA training.

One other study examined the use of a structured mindfulness programme (SMP) in 14 male adolescents with a history of sexual offending (age not reported) [179]. The programme was designed specifically for this population and mainly involved yoga postures. The methods for data analyses were not reported. Interviews took place immediately post-SMP, and two months later. Findings were reported as: (1) the course was well received by participants, who felt well treated and respected by those running

the course; (2) participants felt relaxed from taking part; (3) the breathing practices helped to improve sleep, self-control, and especially anger; (4) a greater degree of pro-social attitudes was reported by participants i.e. showing a greater concern for the welfare of others, and distress at the thought of harming another. A finding shared with the current study was that some participants described how disruptive behaviour in classes diminished the positive experiences of others taking part.

9.2 Strengths and limitations

This research has some notable strengths, but also numerous weaknesses. These are considered below under the headings of design, recruitment and retention, data collection, and interpretation of results.

9.2.1 Design

The MRC guidance for developing and evaluating complex interventions [28] recommends that feasibility and piloting should be carried out prior to proceeding to a phase-3 efficacy trial. This is because feasibility work can uncover unanticipated difficulties in developing and evaluating a complex intervention in a novel setting. By identifying such difficulties early on, potentially expensive problems at a later stage can be avoided.

This study assessed feasibility in a number of ways, which is a key strength. Feasibility was evaluated for developing and delivering a mindfulness-based course in a challenging prison setting. Furthermore, the feasibility of recruiting, retaining, and following-up young men taking part in the intervention was assessed.

In the MRC guidance (2008), a ‘pilot’ study usually refers to a ‘scale model’ of the intervention to be delivered in a phase-3 trial i.e. no further changes to the mindfulness course would be anticipated [28]. However, other authors have more recently suggested

that piloting can also refer to testing earlier versions of a course, such as has been the case in this current study [283]. Adopting a flexible and iterative approach has facilitated numerous adaptations to the standard MBSR course to improve its acceptability and accessibility to the young men in HMYOI Polmont. The flexibility of the delivery of the programme makes it relevant to both the RNR model and the more humanistic model promoted by McNeill (2012), in that both suggest that interventions in forensic settings should be tailored and responsive to those taking part [94].

Although a lack of randomisation could legitimately be seen as a weakness in this study, the MRC guidance (2008) states that randomisation is not essential at an early stage of development [28]. Testing randomisation procedures at a later stage in the feasibility process would be important. The pre-post design used in this thesis means that results of effects of the programme on outcomes have to be interpreted with caution.

This study employed a pre-post observational design, therefore regression to the mean (the statistical phenomenon that can make natural variation in repeated measurements data look like real change) [281] cannot be ruled out. Regression to the mean suggests that scores tend to even out over time or that some outcomes are at least partly due to chance. For example a participant may report symptoms as 'severe' at baseline but less 'severe' at post-intervention. This may be simply due to the natural passing of time or random fluctuations. These changes may appear even if the intervention has not been effective. Failure to appreciate regression to the mean can lead to incorrect interpretation of the data, resulting in inaccurate conclusions. A control group removes the effect of regression to the mean, and would be important to include in a future study.

A power calculation was not undertaken in the current study, as an accurate prediction could not be made in advance about how many young men could be recruited. The MRC guidance (2008) stipulates that a power calculation is not essential during this early stage in the research process [28]. However, for a definitive (phase-3) RCT a power calculation would be performed. It would likely be based on effect sizes for primary outcome

measures identified through the feasibility process and tested in an exploratory phase-2 RCT before moving on to a definitive phase 3 RCT.

Achieving an adequate sample size for a definitive trial can be estimated based upon how many individuals were approached in order to reach the recruitment target. The likely levels of missing values can be inferred from those reported in this study, and likely attrition can be projected from the levels dropping-out at the feasibility stage. However, recruitment and retention to a RCT is a different prospect from recruitment and retention in a pre-post study such as that in this thesis. Thus, a phase-2 exploratory RCT would likely be required before deliberating over required sample size for a phase-3 study.

A further strength of this study is that the intervention has been based upon a well-researched, manualised mindfulness course (MBSR). However, intervention fidelity was impossible to consider as each course needed to be flexible to the needs of participants. The modifications that have been made were informed by multiple relevant sources, including the empirical literature, the young men taking part, the mindfulness teacher and staff at HMYOI Polmont. Conducting qualitative interviews with course participants and the mindfulness teacher about how the course was delivered can be seen as an indirect measure of fidelity [284], but in a future study it would be important to directly assess intervention fidelity to compare against a manualised version of the course. This could be done, for example, by video-recording sessions, or having an observer in classes. This would be particularly important in the case where a study involved multiple sites and thus different mindfulness facilitators.

The feasibility work presented in this thesis has also allowed assessment of various outcome measures. The findings can be used to optimise outcome measurement in future studies. For example, the DERS was perceived as lengthy, repetitive and difficult to comprehend. Furthermore, it did not detect significant change, which would suggest either leaving it out altogether or replacing it with a shorter, more age-appropriate measure. In addition, the GHQ-12 could be replaced with an explicit measure of anxiety,

depression or PTSD, given their high prevalence in this population. Which specific measure for mental health would depend on who was being recruited and what was being assessed i.e. if a future study was to target specifically incarcerated young men with a diagnosed mental health problem. Also, a single, low toil, measure of impulsivity such as the TCS could be used. Finally, it seems likely that a single age appropriate measure of mindfulness, such as the CAAM, is sufficient. Since completing the study, I have become aware of a version of the MAAS designed specifically for use with adolescents [285]. This measure could be assessed for feasibility in a future study.

Measures of impulsivity in this thesis were limited to self-report, and objective behavioural reports, such as frequency of challenging/violent behaviour, could add weight to the self-report findings. However, although desirable, this might not be feasible; they would be expensive and difficult to administer and also present ethical challenges as participants would have to consent to being observed at all times.

9.2.2 Recruitment and retention

Recruitment into this study was challenging. Multiple strategies were employed. None of these stood out as better than the others. Thus, the best recruitment strategy for this population remains unclear and no firm recommendations can be made.

Selection bias Selection bias refers to the tendency towards over-or under-representation of certain categories in a sample population through the selection process (Coolican, 2009). As a non-randomised study design, selection bias was a significant risk in this study and participants are unlikely to have been representative of the incarcerated male youth population at large, or possibly even within HMYOI Polmont itself. Points at which selection bias may have occurred include:

1. When defining/implementing inclusion/exclusion criteria. For example those who were invited to take part in this study were housed in a YOI in Scotland, aged

between 18-21, mostly coming from the mainstream population (i.e. sex offenders, remand prisoners and 16-17 year olds were excluded).

2. Through recruitment taking place via the Forensic Psychology Services. Onsite staff may have selected potential participants based on unconscious bias or conscious preferences. For example the Lead Forensic Psychologist specified prioritising those who had already completed the Constructs training programme (i.e. a CBT based intervention).
3. Through self-referral. Those with an interest in either the mindfulness approach or seeking approval for their behaviour, for example, may have come forward.

Rater bias Rater bias refers to the different response tendencies, interpretations, or expectations of each rater ([286]). In the current study there may have been times when the young men (the raters) felt:

1. Peer scrutiny. Filling out the measures in a group setting may have influenced how the young men completed them i.e. not wanting to be seen as weak or vulnerable amongst their peers.
2. Fear of being seen to have low levels of literacy. Levels of literacy and cultural difference may have influenced how the young men interpreted and consequently filled in the outcome measures.
3. Fear of being reprimanded. Participants may have filled out measures a certain way due to fear of being reprimanded by the penal system authorities or disclosure having a negative impact on early release or their treatment within the YOI.
4. Fear of psychological scrutiny. In the qualitative interviews some of the young men highlighted being ‘distrusting of psychologists’, therefore, they may have been apprehensive about how the results would be interpreted, perhaps influencing the way in which they completed the questionnaires.

Attrition bias Attrition refers to the loss of participants from a study. Withdrawals from the study can lead to incomplete outcome data, which may bias findings. For example if those who dropped out continue to complete measures they may have significantly changed outcomes reported. If an individual drops out it may be because the intervention was objectionable to them, made them feel worse, or because they found it to be ineffective. In a YOI reasons accounting for attrition may differ from those in other setting. For example participants may have being granted earlier release, transferred to a lower security institution, or put into 'isolation' and 'drop-out' may not be through choice. As such, the transient nature of prison life can be seen as a confounding factor when appraising and interpreting overall findings. In these circumstances, accessing the individuals concerned, in an attempt to understand the attrition process, was simply not possible in the current study.

Course completion, retention on the course, and more generally in the study were disappointing, with the current study reporting the lowest level of all studies in this area so far. The low levels of retention in this current study are particularly concerning given the focus of this research on developing a bespoke course. The qualitative interviews allowed some insight into potential barriers and facilitators to sustained involvement.

9.2.3 Data collection

In the main, baseline and post-measure collection was completed in a group format, rather than on a one to one basis. This necessitated measures being distributed in batches, facilitated by myself and a designated recruitment manager. This was under the advice of staff at HMYOI Polmont, but in general the approach is not recommended. Being in a group may inhibit participants from completing the measures, may lead to participants copying each others responses, or may lead to distraction among participants; already identified as a considerable problem in this group.

Despite all data collection being supervised, there were some missing values. It is not clear why some questionnaire items were missed out. Checking questionnaires would

have been difficult given the practical difficulties of collecting data in a prison setting, where safety of the young men, the researcher, and the prison staff was a constant concern. Another important consideration is the Hawthorne effect - how research participants respond differently to their norm when they know that they are under observation [287]. Coming into the prison as a female researcher was formidable, necessitating a high degree of vigilance in terms of personal safety, and from the young men's perspective, the presence of a young female researcher may have influenced their behaviours and responses to both the questionnaires and during the qualitative interviews. This information was not explicitly sought in the qualitative interviews, but could be in future study.

The possibility of recall bias is a consideration for all researchers. In the current study, because the questionnaires and interviews asked participants to report retrospectively, remote from the experiences being described, there is a risk of recall bias. In addition, and in specific reference to incarcerated populations, Shonin et al. (2013) note a pronounced risk of recall bias and/or deliberate under- or over-reporting (e.g. due to fear of being reprimanded by penal system authorities or disclosure having a negative impact on early release) [150]. Qualitative interviews with the young men in this study add support to this concern and it is possible that the accounts generated may not have covered some important aspects of the young men's experience.

The gold standard outcome measurement for interventions for incarcerated youth is rate of recidivism [12]. This was not measured in the current study, mainly because it would have been impossible in such a small-scale feasibility study where it was difficult even to follow participants up 3-months after they started the programme. The practicality of collecting these data should be considered in a phase-2 exploratory RCT.

9.2.4 Interpretation of results

Quite apart from the non-randomised design, another weakness of this study is the small sample size and lack of control group. This limits interpretation of outcome measure

assessments of potential effectiveness. It also prevented exploratory factor analysis, which in a larger sample size could be used to test more accurately for redundancy among correlated outcome measures, given that many of the outcome measures used correlated with each other [196, 288].

Some of the significant effects could be due to chance, as multiple t-tests on the included measures and their sub-scales were carried out in the current study. Thus not all the significant differences may be 'true' (type 1 error) [289]. As the study was small, and not powered, other non-significant differences (eg DERS) may not be 'true' but a reflection of the small sample size (type 2 error) [290].

A further potential weakness from non-randomisation is the potential clustering of young men in groups. Although this was explored using ANOVA, and not found to be a significant issue, any future large-scale research may require to adjust for clustering using multilevel modelling [220, 290].

Of further concern is that outcome assessment was not blinded, in that the young men were identifiable to the researcher. In a future study, and a definitive RCT in particular, outcome assessor blinding would be an important quality indicator, as one way of minimising bias.

Some of the young men who took part in this study were also attending other courses in HMYOI Polmont, as is normal practice in the YOI. This factor was not controlled for in the current study. The possibility of other factors unrelated to the mindfulness intervention exerting a therapeutic influence and thus confounding the findings cannot be ruled out. Some of the young men were attending, or had previously attended, 'Constructs', a CBT-based intervention. A future study undertaking direct comparison between the mindfulness-course and 'Constructs' is a possible research option, but prohibiting the young men from taking part in other interventions during the course of

such a study would require institutional buy-in and careful consideration from an ethical perspective. However, this could be recorded and controlled for in subsequent analysis.

Another limitation is that not all of the young men who took part in the mindfulness course were interviewed. Their views may have added important data that is not otherwise covered in this study.

As this was a feasibility study, the main focus was the young men's experience of the course but this was supplemented by interviews with other key stakeholders. Due to instructional restrictions accessing prison staff for interview was overseen by staff in the Forensic Psychology department. No limit on the number of staff to interview was proposed by myself (the researcher). On reflection it would be advantageous in a future study to request advance information regarding sample pool for potential interviewees from prison staff, from which a minimum acceptable purposive sample size could be identified during the design and planning phase. At the time of thesis submission, I remained uninformed regarding how many staff in the prison could have been approached, were actually approached, consented or declined and thus how many additional potential interviewees there could be if drawing from the total pool. Furthermore, demographic factors such as age, sex, or factor related to the post such as designation, level of experience and seniority were unavailable, information that would be important, if seeking a purposive sample in a future study. In the current study, the Lead Forensic Psychologist, informed me that such information would not be made available for reasons of identifiability, security and staff safety.

Thus, such restricted access to staff meant that interviews were only conducted with four prison staff. Without more details being available this is likely to represents a limited sample from which to draw reliable conclusions.

Finally, my professional training/ background in Psychology as well as my being a yoga and mindfulness teacher may have influenced interpretation of findings. Though every

effort was made to remain a reflective 'detached observer' during the research process. Regular supervision and discussion with my supervisors sought to minimise the extent to which my interpretations were influenced by my own experience and assumptions.

9.3 Course optimisation

Based on the findings presented and discussed above, and taking into account the strengths and limitations of the research described, the following are recommended for optimisation of course delivery:

1. Beyond the modifications already made, further changes are likely to be required before moving to an exploratory phase-2 RCT. For example, problems with recruitment and retention have not been fully overcome at this stage and more research is required to determine the optimal recruitment and retention strategies. One option may be embedding the course into the routine organisational processes of the YOI. This may help improve recruitment and hence the reach of the intervention.

2. Making the mindfulness course more attractive is important. This may require communicating clearly its relevance to the young men, and providing some form of incentive for taking part and completing the course. Course completion certificates were introduced during this study, but future incentives may require parity with other courses within the YOI, such as monetary reward, or a favourable view during parole hearings. Enhancing the credibility of the course could also be achieved by having 'champions' within the YOI, who could be members of staff or young persons who have gone through and benefited from the course.

3. It may be that certain mindfulness practices should be emphasised more than others; the young men in this study appeared to prefer more somatically-based

practices. There was also a preference for shorter practices. Were mindfulness to be implemented as a wider treatment strategy in youth offending populations, knowing how to generate and sustain engagement with the practices would be important, otherwise poor engagement could limit the effectiveness of the intervention.

4. Learning needs seem to be diverse and complex among the young men, and teaching materials require careful scrutiny, in terms of reading age and relevance. Psycho-education material in the mindfulness course should be simplified in terms of language and constructs. In addition, any form filling should be kept to a minimum, and where necessary should be appropriately adjusted for likely reading age.

5. Course sessions should be tightly structured so as to engage and retain the young men's attention. Regular breaks and the provision of refreshments may facilitate engagement.

6. This group of vulnerable young men is likely to have complex mental health needs, as well as potential for volatile and unruly behaviour. Therefore, future mindfulness courses for this group may best be delivered by two trained mindfulness teachers, or at a minimum, one trained teacher and a second facilitator who might be a forensic psychologist with experience of working with incarcerated young men, or another 'in-house' member of the Institute with suitable interest and group skills. Two facilitators could also help limit disruption of group continuity due to sick leave, annual leave, or other commitments.

7. Safety is an important consideration. Many of the problems identified with course session governance, such as managing disruptive behaviour and providing a safe environment, could potentially be overcome by instituting a second group facilitator.

8. Eventually, this bespoke course could be manualised for future use, as a means of providing an evidence-based mindfulness intervention, with course aims and objectives, content and components reflecting what matters to the young men and their rehabilitation needs. However, it should not then be applied arbitrarily to other incarcerated populations (e.g. women, adult prisoners, sex-offenders) out-with the population studied in this thesis without further evaluation and modification.

9. Finally, consideration should be given to the ongoing availability of a mindfulness group after the 10-week course has ended, which may serve to enhance and prolong any beneficial effects.

9.3.1 Was the course optimised or diluted?

Most MBIs delivered within clinical populations have been optimised, to a greater or lesser extent, to match the needs of the populations they are targeting. For example MBCT was adapted from MBSR for use with those predisposed to recurrent depression; integrating aspects of MBSR with CBT, with a specific focus on targeting ruminative thinking patterns. Elsewhere, MBSR has been adapted to help treat individuals diagnosed with an eating disorder, and tailored MBIs have been developed for people with multiple sclerosis, epilepsy, and psychosis. Equally, interventions such as Acceptance and Commitment Therapy (ACT) and Dialectical Behaviour Therapy (DBT) include aspects of mindfulness training, but in this case, heavily diluted, situated among many other psychological education and practical techniques. Thus, it is important to be clear whether adapting MBIs represent optimisation (i.e. moulding the course components to render them more acceptable and accessible to participants), or diluting, where MBI components are simply adjuncts to a wider ranging treatment approach, possibly altered from original form and delivered in a way that is quite distinct from that which has become representative of MBIs and their basis in the eight week MBSR programme.

Revisions to the course in this study were largely reactive, meaning that they were based on rapid appraisal of qualitative feedback from a limited number of stakeholders. The mindfulness teacher had found delivering the standard course difficult, in that the young men did not identify with the course content or delivery format, found the length of practices challenging, and were disruptive in the group. These experiences, alongside feedback from the small group of young men interviewed for each course, and previous experience of the teacher guided course alterations. Each subsequent course was modified in a similar way. This fast, reactive, approach was necessary, given the limited time and resources available for the study.

Although the development of the course through successive iterations was fast, it was also systematic. In all versions the core components of MBSR were delivered; what differed was the form in which they were delivered, which needed adaptation to each group. The variability in group responses to the overall programme meant that it was necessary to remain flexible about how these core components were delivered, being sensitive to group responses. The aim was to teach transferable skills (i.e. skills that could become embodied and as such accessible for the incarcerated young men in other settings) in a manner that was acceptable to the young men, as well as being inclusive of the social and cultural factors germane to this group of young men. The course, therefore, was designed to be flexible enough to help participants manage their own, personally specific, problems and issues, through the application of mindfulness skills.

We explored whether the young men could transfer the mindful skills from the 'class' environment to other settings such as their cells and other prison settings. We also asked, during the semi-structured interviews, whether participants intended to use these skills once released back into the community. The young men gave concrete and practical examples of how they had independently adapted the practices, making them more relevant to the issues arising within the prison context. Examples where the young men recounted using the breathing practices to regulate distressing emotions included:

- Receiving news that a relative or friend had died (usually drug or gang related).
- Dealing with the stress and isolation of being incarcerated
- Dealing with 'flashbacks' post traumatic experiences
- Dealing with the daily exposure to hostile and potentially threatening situations within the prison itself
- Dealing with potential peer conflict or disagreements with HMYOI Polmont staff

Based on the needs and circumstances of the young men course components were moulded to render them more acceptable and accessible. Therefore, it is reasonable to infer that the current programme was not diluted, but in fact optimised.

Disappointingly, optimisation efforts did not improve recruitment and retention rates. Difficulties with recruitment were also responded to in a reactive manner, where new strategies were developed and implemented rapidly, again on the basis of views from the mindfulness teacher, and small numbers of the young men. Despite these efforts, however, recruitment remained challenging. This may have been for a number of reasons, including:

1. General difficulties in recruiting within this population, as evidenced by the 2016 report by the inspectorate for prison services
2. Poor buy-in from institutional staff
3. Mindfulness may simply have low inherent relevance for the young men, from their perspective

   The course lacking in incentives for participation may have scuppered any chance of 'competing' alongside other, more established courses in the institute that came with embedded, tangible, and relevant incentives for taking part.

An alternative approach to the successive iterations of both programme and recruitment could have been to stick more rigidly to the standard programme, but this also ran the risk of low levels of recruitment, engagement, and retention, without allowing for innovation

based on stakeholder input. Thus, if standard MBSR was found to be poorly received by the young men, if seeking to optimise, then a future study would eventually require to enter into the progressive series of changes that the current study opted for from the start.

9.4 Recommendations for future mindfulness facilitators

Beyond the modifications made to the mindfulness course in this study, the following four recommendations are provided to help inform future facilitators delivering this type of intervention.

- **Special considerations when working in high security settings**

    - Future mindfulness teachers should be aware of the pragmatic challenges that may arise when working as a mindfulness teacher within a young offenders institute. For example due to the nature of a YOI, access onto the premises is rigorously controlled, all individuals on entering and leaving the building are required to pass through a metal detector, need to present valid and acceptable forms of identification each time, and need prior clearance if taking any equipment onsite. As the incarcerated young men are considered vulnerable and at risk, an enhanced disclosure is required prior to any contact being agreed. Mindfulness teachers are also required to undertake compulsory training such as Personal Protection Training (PPT), which needs to be updated on a yearly basis. Administrative oversights may interrupt the delivery of the intervention so it may be necessary to follow up if special provisions are required. For example on one occasion, due to an administrative oversight, security personnel had not being provided with authorisation paperwork, confirming permission for me to take a recording device onsite. Even though I had done so on several previous occasions. Therefore, they were

unable to sanction my visit; serving to interrupt and delay data collection on that particular day.

- **Potential participant interest and willingness to take part in a mindfulness-based course**
    - Encouraging greater levels of engagement, motivation, and willingness to change within the young men is an important consideration for practitioners working within this setting. Tackling this problem may require the mindfulness teacher to work collaboratively with the Governor-in-change, senior management and other relevant bodies so that the intervention can have the greatest possible impact on the lives of the young men.

- **Delivery of the course**
    - Mindfulness teachers wishing to implement mindfulness programmes in a prison setting should be aware of and comfortable with dealing with the high level of complex mental health issues, low levels of education and literacy, attentional difficulties, history of adverse childhood experience (ACEs) and tendencies towards violence. It is important that whoever facilitates such courses is appropriately trained and qualified to work with the common problems associated with this population (Crane et al. 2012). There are currently no statutory regulations regarding qualifications, but a UK voluntary code of conduct exists [291] regarding the desirable level of training, supervision and practice pathways for mindfulness teachers, and those teachers working in organisations that incorporate mindfulness as an intervention strategy should be aware of this guidance.
    - This group of vulnerable young people has complex mental heath needs, as well potential for volatile and unruly behaviour. Therefore, future mindfulness courses for incarcerated young men may best be delivered by two trained and experienced mindfulness teachers, or at a minimum, one

trained teacher and a second facilitator who could be a forensic psychologist with experience of working with incarcerated young men, or another in-house member of the Institute with suitable interest and group skills. Two facilitators would also help limit disruption of group continuity due to sick leave, annual leave or other commitments.

- On going supervision is necessary for the mindfulness teacher to deal with the variety of personal, professional and ethical dilemmas that may arise; encouraging them to grow in confidence and establish themselves as a competent teacher, when working with incarcerated young men in this type of setting.
- Consideration should be given to the ongoing availability of a mindfulness group after the 10 week course has ended, which may serve to sustain beneficial effects, as evidenced in the literature, and highlighted as important by the young men during the interviews.

- **Building a therapeutic relationship:**

  - Time needs to be invested in forming collaborative and trusting relationships with the young men. I found useful guidance in the work by Sam Himelstein (2013), which provided a methodology for connecting with vulnerable young men on an authentic, human being level. His work acknowledges the intricacies involved with such an endeavour, emphasising how working with high-risk adolescents can be extremely challenging. He highlighted authenticity, presence, awareness of counter-transference and one's own personal anxiety as important factors to consider for anyone working with this population.

9.5 Future research directions

Development and optimisation of the mindfulness course duration and content was a continuous and iterative process throughout the delivery of all seven courses in this study. Future courses with this population should use the latest version of the tailored intervention, developed over the duration of this evaluation. The core features of the course should be delivered flexibly, in response to the needs of participants. Future studies could specifically monitor adherence in relation to form (structure of how the course was delivered) and function (content of delivery and how it was received) [224].

Pre-eminent theories of how MBIs are thought to work (such as improving cognitive functioning and self-regulatory abilities) have obvious overlap with common difficulties among incarcerated young men. In developing the course we did not make explicit the underpinning theories through which we expected increased mindfulness to work. However, in future developmental work, using the data gathered here, a clear theory of change and theory of action can now be developed with process outcomes, short and medium term, proposed.

Theory of change allows a thorough description regarding how and why a desired change is expected to happen in a particular context (Funnell et al., 2011). This process involves ‘mapping out’ or ‘filling in’ the process between what the intervention does and how such activities lead to desired goals being achieved. The researcher works backwards, having identified the long-term outcomes likely to be achieved, then identifies preconditions or requirements needed for these outcomes to be achieved drawing on other theory, such as on how mindfulness might operate, throughtout. Through this process the link between the intervention and the achievement of long-term goals can be more readily understood, leading to better planning, implementation, and evaluation. Constructing a hypothetical theory of change would be important before proceeding to a more definitive study. For example, it would be worth explicitly theorising why and how mindfulness might work to reduce impulsivity.

When proceeding to a RCT to evaluate the intervention, it will be important to carefully consider which outcomes to focus on, what can be measured, and how these measures can be linked back to the theory of change. Priority can be given based on a number of factors, and to a certain extent may depend on study purpose and funding, but most importantly must address the needs of the young men.

In this context, the intervention would be seeking to target improvements in areas known to be important in offending and re-offending behaviour. Examples of such outcomes would be impulsivity and/or mental health, but as evidenced in this current study, outcomes will need to be valid, reliable, age appropriate, and responsive to the particular population being studied. Another approach could be to measure more participant-centred outcomes, where the young men identify themselves what they would seek to gain from completing a MBI. Evidence from this study suggests the young men may seek to gain improvements in sleep, relaxation and relationships with others.

In further feasibility work, it may not be necessary to order outcomes as primary, secondary etc, and a range of measures could be included, such as was the case in this study. In a RCT, a primary outcome will be required, representing the focus of the research question.

Testing a MBI in a RCT would allow for more robust conclusions to be drawn about the value of a bespoke MBI for incarcerated young men. Randomisation controls for confounding factors, which should theoretically be evened out through the randomisation process, but care is still required to protect against common sources of bias (Cochrane 2006) and the implementation of a RCT in a prison setting may prove challenging, as evidenced by the current study. Depending on study design, a RCT can test an intervention against treatment as usual i.e. in addition to what an individual would do in the institute anyway, and participants either receive the MBI or not. Thus, evidence to support/refute additional benefit from the MBI is being sought. This type of design allows for an evaluation of cost-effectiveness, important when commissioning novel

treatments to improve existing practices. An alternative approach would be to test the MBI against an established intervention, known to be effective for improving a particular outcome, i.e. testing comparative effectiveness of CBT against a MBI at improving mental health.

The current evaluation should only be regarded as the first step in the evidence-base for mindfulness with incarcerated young men. This thesis has demonstrated that the international evidence-base is very limited and the study should be regarded as a feasibility study; future larger studies are required that include a control group for comparison of effects, and ideally delivered as a randomised controlled trial or if randomisation is not possible then with a matched control group. Therefore, it will be important in future research to assess the feasibility of randomisation in a phase-2 exploratory RCT before moving on to a definitive phase-3 RCT. This future work could take a pragmatic approach and randomise participants to mindfulness versus 'treatment as usual' or could include an active control group. This would control for non-specific confounders such as the group effects, and could test mindfulness against a matched 'sham' intervention [292] or another active intervention such as CBT.

9.6 Conclusions

The research presented in this thesis suggests that mindfulness-based interventions have the potential to benefit incarcerated populations. However, existing evidence regarding their utility among incarcerated young men is limited and the optimal approach unknown.

The standard MBSR course required substantial modifications to make it more relevant, acceptable, and accessible for this population. Some aspects of the training appear to have been more accessible to the young men than others and somatically-based practices, such as the body scan and the breathing practice may represent the best approaches when teaching mindfulness to this group. On the other hand, the young men struggled with the

psycho-educational components of the course i.e. those parts that were more theoretical, which they often felt were less relevant to them.

The feasibility work undertaken in this thesis has identified numerous challenges with recruitment, retention and attendance on the course in the setting used. Engagement with the bespoke mindfulness-based course was low. Collecting data on recruitment and retention proved to be invaluable in highlighting the potential difficulties that may arise and thus allowing them to be addressed prior to running a definitive RCT. Reasons accounting for low levels of recruitment and retention to the course included; the 'lower status' the course took within the wider HMYOI context, recruitment being associated with mental health services, diverging agendas, institutional and organisational barriers, a lack of understanding of mindfulness and participants individual characteristics and vulnerability to peer opinion.

Completion of outcome measurement at baseline and immediately post-course was feasible and relatively good, low levels of incomplete data being reported for those who attended data collection sessions. However, three-month follow-up was sub-optimal and would need to be improved in any future research. Emphasising the study's significance to prison staff and participants, maintaining regular and close contact with the onsite recruitment team, and providing incentives to the young men such as remuneration on completion of measures, may serve to improve data collection at this time point.

Baseline correlations between outcome measures suggested some degree of redundancy. Those that were designed for the adolescent population were most sensitive to change. As such an age appropriate mindfulness measure such as the CAMM could be used in a future study. Also, the shorter four-item teen conflict survey, used to measure impulsivity, could be used to replace the longer impulsivity measure used in this study (BIS-11). Finally, the GHQ-12 could be replaced by explicit measures of anxiety, depression and PTSD, given their high prevalence in this population.

Despite the challenges faced, preliminary findings suggest that mindfulness training may help with lessening impulsivity and improving mental wellbeing and some aspects of inner resilience. In addition, the young men spoke about a range of positive changes, such as sleeping better, feeling better, having better relationships and being able to manage anger, stress and impulsivity. However, more high quality research is required before definitive recommendations on the effectiveness of a mindfulness-based course for incarcerated young men can be made.

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Appendices

Appendix 1 Sample scoping review data extraction sheet

Data extraction field	Description
Bibliographic details	
Title	Mindfulness Meditation and Substance Use in an Incarcerated Population
Authors	Bowen S, Witkiewitz T, Dillworth NC, Simpson TL, Ostafin BD, Larimer ME, Blume AW, Parks GA, Marlatt GA.
Year: vol (issue) page no.	2006: 20(3), 343-347.
Journal	Psychology of Addictive Behaviour
Participant details	
Number of Participants	305; 63 VM and 242 active control
Gender	Male (79.2%) and female (20.9%)
Adult/Adolescent	Adult population
Age	Ranging from 19-60. Mean (SD) 37.48 (8.67)
Ethnicity	European American (186;61.1%); African American (38; 12.6%); Latino/a (26; 8.4%); Native American (24; 7.8%); Alaskan Native (7; 2.4%); Asian/Pacific Islander (7; 2.4%); Multi-ethnic or other (17; 5.4%).
Educational attainment	Graduated from college (53; 17.3%); High school education (174; 57.2%); Middle school or less (78; 25.6%)
Offence type	Driving under the influence; Theft; Drug procession ; Prostitution
Sentence length	Not included
Mental/ medical health	History of substance abuse
Study details	
Study aim	To evaluate the effectiveness of a VM course on substance use and psychosocial outcomes in an incarcerated population.
Study design	Non-randomised controlled trial
Country/countries of study	USA
Population setting	Minimum security jail
Method of recruitment	Recruited from the facility in the weeks prior to the course commencing
Participant Inclusion / selection Criteria / purposive sampling criteria	To be eligible for the study, inmates had to remain in the facility (i.e. not be transferred or released) throughout the length of the VM course and be present in the facility at the time of post-course assessment. Convenience sampling was used.
Participant Exclusion criteria	Not made explicit in the paper
How data was collected	Measures were administered via self-report at baseline, 3-month, and 6-month follow-up assessments
How data was analysed	Missing data, at the item or scale level, were estimated using maximum likelihood (Little & Rubin, 1987). Multivariate path modelling was used to test the relationship between VM course and post-release substance use Six-month follow-up was excluded from analysis because of high attrition rates.
Outcome measurements used	Mental health (BSI); Quality of life and wellbeing (LOT); Substance use (DDQ; DDTQ; DRLC)
Data collection time points	Pre-post and then 3 month and 6 month follow up post release (not completion of intervention)
Results	Significant reduction in post incarceration substance use (alcohol (87% reduction), marijuana (89% reduction), crack cocaine (66% reduction), reduced psychiatric symptoms, improved sense of locus of control and increased levels of optimism. Recidivism rates were similar in both the intervention and TAU groups.

Intervention details	
Definition	Vipassana Meditation (VM) Gender segregated intensive 10-day silent residential programme
Course content	VM course participants were housed separately from the other inmates during the 10-day course and were not allowed outside contact. Meditation typically lasted 11 hours each day. As the course was conducted in silence, they were instructed to refrain from speaking, except for questions to course staff or the instructor. Meditators began by focusing on observing the breath and calming the body. Beginning with Day 4, students began "body scans," or observations of physical, emotional, and mental experiences, with a focus on non-reaction to sensations.
Who delivered the intervention?	Course instructors were experienced meditators appointed by the Buddhist teacher S.N. Goenka
Did they have specific training?	Unclear
No. of participants per group	Not recorded
No. of courses delivered	Nine gender-segregated VM courses (five men's courses, four women's courses) were delivered and evaluated during a 15-month period.
Intervention materials	Not made explicit
Intervention location	Converted hall within the correctional facility
Incentives given	Participants received $5 for baseline and postcourse assessments and $30 for follow-up assessments.
Limitations and overall comments	
Limitations noted by author	Lack of randominisation; some participants already had prior experience of meditation; 3 month follow up were completed post release not post intervention therefore all participants completed these measures at different time points; all measures used in the study were self-report; adherence to the practices was not assessed; other variables may have influenced the outcome such as course setting (separate from other inmates, silence was observed at all times, smoke-free environment and only vegetarian meals were served).
Authors conclusions	Psychosocial treatments for SUDs are commonly found to be inaccessible, expensive, stigmatizing, and undesirable by the majority of individuals who meet criteria for substance dependence or abuse. The authors suggest that the VM course offers a possible alternative and that the results provide preliminary support for the effectiveness of VM as a treatment for SUDs in correctional populations.
Reviewer's comments	This study received a weak quality score, scoring low on selection bias, study design, and withdrawal and dropout. Intervention details were light, as were details of the facilitators who delivered the course and their appropriateness to do so within a correctional setting.

Appendix 2a Qualitative quality appraisal tool used in the scoping review

For the four qualitative studies a quality appraisal tool based on Spencer, Richie, Lewis, and Dillon's (2003) framework for assessing Quality in Qualitative Evaluations was used. This framework, drawing on a systematic review of existing literature on approaches for judging the quality of qualitative research [160], consists of 18 open-ended appraisal questions, governed by four guiding principles: 1) Contributory i.e. has knowledge and understanding been extended by this research? 2) Defensible in design i.e. do they use an appropriate research strategy to address the evaluative question posed? 3) Rigorous in conduct i.e. have they shown to be systematic and transparent in their collection, analysis and interpretation of the data? 4) Credible in claim i.e. are well-founded and plausible arguments offered?

Beside each question a series of 'quality indicators' are provided to assist the assessor in determining what information is required for each specific component. The authors [171] emphasise that the tool should be used to aid 'informed judgment' on quality, rather than taking a mechanistic approach. Table 1 provides an example of one of the appraisal questions and the quality indicators, for the included paper Himelstein et al. (2012).

Table 1 Example of appraisal question and quality indicator for assessing quality in Himelstein et al's (2012) qualitative study.

Appraisal question	Quality indicators	Reviewers Comments
How credible are the findings?	Findings/conclusions are supported by data/study evidence (i.e. the reader can see how the researcher arrived at his/her conclusions; the 'building blocks' of analysis and interpretation are evident)	Findings are supported by the data i.e. the quotes used in the text support the theme they represent.
	Findings/conclusions 'make sense'/have a coherent logic	Findings make sense and have a coherent logic.
	Findings/conclusions are resonant with other knowledge and experience (this might include peer or member review)	A link between the research and existing knowledge was demonstrated.
	Use of corroborating evidence to support or refine findings (i.e. other data sources have been used to examine phenomena; other research evidence has been evaluated: see also Q14)	Corroborating evidence has been used to support findings
		Findings are limited by the fact that the facilitator also collected the data. Also, not much detail provided about the data analysis tool.

Appendix 2b Quantitative quality appraisal tool used in the scoping review

To assess the quality of the 10 quantitative studies the Effective Public Health Practice Project (EPHPP) quality appraisal tool developed by Thomas, Ciliska, Dobbins and Micucci (2004) was used. This tool comprises a 21-item checklist highlighting main sources of bias for each type of study, allowing an overall assessment of the studies quality to be generated.

This tool is divided into seven sections:

(1) Selection Bias

(2) Study Design

(3) Confounders

(4) Blinding

(5) Data Collection Methods

(6) Withdrawal and Drop-outs

(7) Intervention Integrity.

This scale required slight modification to account for the difficulties with blinding participants in psychotherapeutic studies. As such the blinding session was allocated a 'strong' score if the outcome assessor was not aware of the intervention status of the participant, a 'moderate' score if blinding was not described and a 'Weak' score if the outcome assessor was aware of the intervention status of the participant.

Individual scores were then entered onto a Global Rating Sheet, with an overall appraisal rate being generated. This was judged based on the following criteria:

- STRONG (no WEAK rating)
- MODERATE (one WEAK rating)
- WEAK (two or more WEAK ratings)

A comprehensive dictionary (developed by the authors) was referred to for clarification on the meaning of certain terms, assisting with the task of determining the extent of bias that may be present in each study. The authors caution that those using this tool should form their opinion based on information *actually* contained in the study rather than making inferences regarding the author's intentions. A 'roadmap' was also provided to assist with categorization. For example, under the heading DESIGN the following indicators were provided:

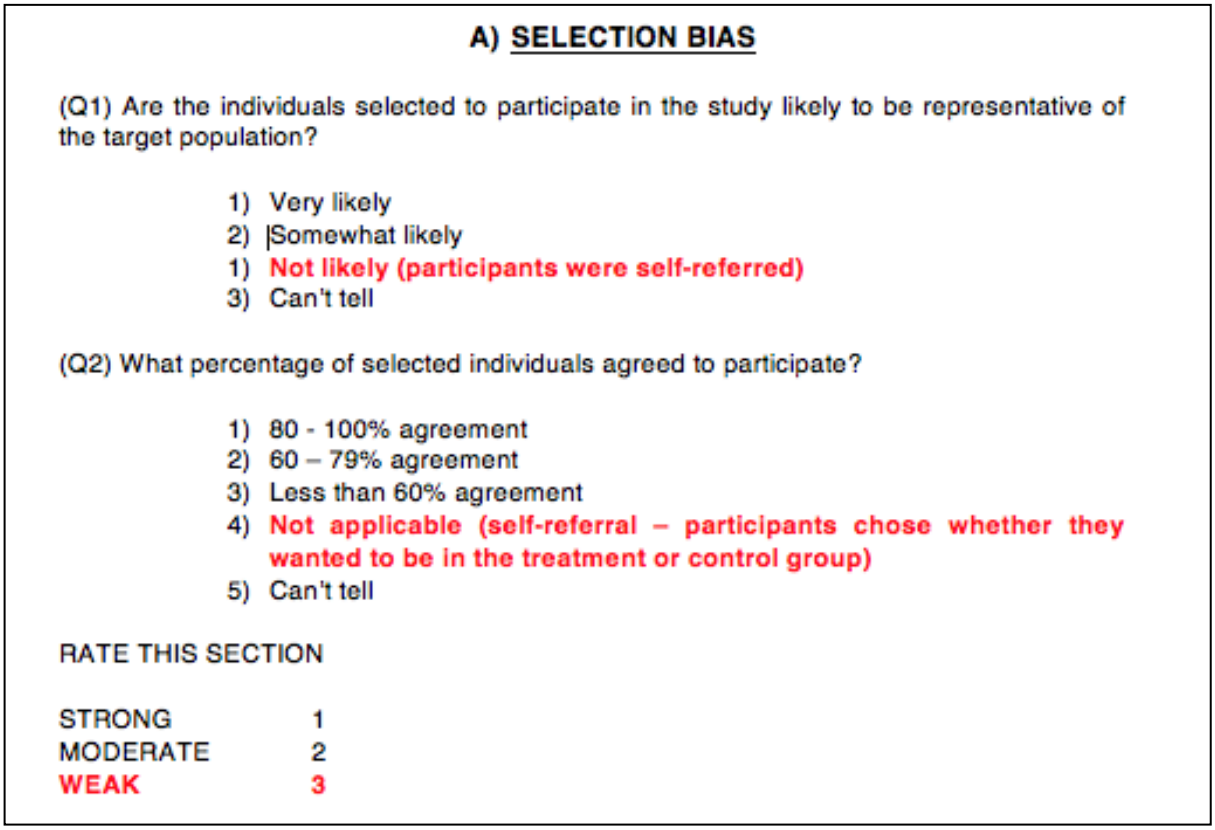
Strong: will be assigned to those articles that described as Randomised Controlled Trials (RCTs) and Control Trials (CTs)

Moderate: will be assigned to those that describe a cohort analytic study, a case control study, a cohort design, or an interrupted time series.

Weak: will be assigned to those that used any other method or did not state the method used.

Figure 1 provides an example of one of the appraisal questions and the quality indicators, for the included paper Bowen et al. (2006).

Figure 1 Quality appraisal example taken from Bowen et al (2006).



A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

1) Very likely
2) Somewhat likely
1) **Not likely (participants were self-referred)**
3) Can't tell

(Q2) What percentage of selected individuals agreed to participate?

1) 80 - 100% agreement
2) 60 – 79% agreement
3) Less than 60% agreement
4) **Not applicable (self-referral – participants chose whether they wanted to be in the treatment or control group)**
5) Can't tell

RATE THIS SECTION

STRONG	1
MODERATE	2
WEAK	**3**

Appendix 3 Quality Appraisal Rating Sheet for quantitative studies

No	Study	Selection Bias	Study Design	Confounders	blinding	Data Collection Methods	Withdrawal and dropout	Overall Rating
1	Perelman et al. (2012)	3	2	2	2	2	3	**3**
2	Bowen et al. (2006)	3	3	1	2	1	3	**3**
3	Khurana & Dhar (2000)	3	2	2	2	1	3	**3**
4	Chandirmani et al. (1998)	3	2	2	2	3	3	**3**
5	Samuelson et al. (2007)	3	3	3	3	3	2	**3**
6	Perkins (1998)	1	1	1	2	1	2	**1**
7	Murphy (1995)	2	1	2	2	1	1	**2**
8	Barnert et al. (2014) (MM)	3	2	1	2	2	1	**2**
9	Himelstein et al. (2011a) (MM)	3	2	2	3	2	2	**3**
10	Sumter et al. (2009)	3	1	3	3	3	3	**3**
11	Flinton (1998)	3	2	3	2	1	2	**3**
12	Himelstein et al.(2011b) (Mm)	2	2	2	2	2	1	**2**
13	Lee et al. (2010)	3	1	2	2	1	3	**3**

Strong = 1; Moderate = 2; Weak = 3

Appendix 4 Outcome measures used matched with the studies that used them

Outcome measure used:	What it measures:	Study that include the measure:	Number of studies in this category
Mental Health			**8**
• **Stress**			
Coping Resources Inventory for Stress (CRIS; Curlette et al., 1990)	Individuals ability to cope with stress	Perkins (1999)	
Perceived Stress Scale (PSS; Cohen et al., 1983)	Perception of stress	Himelstein et al. (2011) Barnert et al. (2014)	
• **Anxiety**			
Hamilton Anxiety Scale (HAS; Hamilton, 1959)	Severity of anxiety symptoms	Chandiramani et al. (1998)	
• **Depression**			
Beck Depression Inventory- II; Walter, Meresman, Kramer, & Evans, 2003)	Severity of depression	Chandiramani et al. (1998) Lee et al. (2010)	
• **Psychiatric symptoms**			
PGIHQ-N1	Screens for psychiatric disorders	Chandiramani et al. (1998)	
The brief symptom inventory (Derogatis & Melisaratos, 1983; BSI-53; Derogatis & Spencer, 1982)	Psychiatric symptom severity and Psychological distress	Bowen et al. (2006) Simpson et al. (2007) Flinton (1998)	
• **Trauma**			
The PTSD checklist-civilian version (PCL-C; Blake et al., 1995)	Screening measure for PTSD	Simpson et al. (2007)	
• **Medical and Psychological symptoms**			
(Modified) Symptoms checklist (Borysenko, 1987)	Medical and psychological symptoms	Sumter et al. (2009)	
The Symptom Checklist-90-Revised (SCL-90-R; Derogatis and Cleary, 1977)	Psychological symptoms in medical patients	Perkins (1998)	

Outcome measure used:	What it measures:	Study that includes this measure:	Number of studies in this category:
Anger, hostility and Impulsiveness			**7**
Cook and Medley Hostility Scale (CMHS; Barefoot, Dodge, Peterson, Dahlstrom & Williams, 1989)	Cognitive, affective, and behavioural components of hostility.	Samuelson et al. (2007)	
Hostility and the direction of hostility questionnaire (Caine, Foulds, and Hope, 1967)	How hostility is recognised, managed and re-channelled into adaptive behaviour.	Chandiramani et al. (1998)	
Novaco anger inventory- short form (nai-25; Mills, Kroner, & Forth, 1998)	Anger arousal (anger one would feel if placed in certain situations).	Perelman et al. (2012)	
Porteus Mazes – Vineliand revision (Porteus, 1965)	Forethought and planning, as well as impulse control	Murphy (1995)	
State-Trait Anger Expression Inventory (STAXI; Speilberger, 1988)	Experience and expression of anger; intensity of anger as an emotional state and individual differences in anger proneness as a personality trait.	Murphy (1995) Perkins (1999)	
Teen Conflict Survey-Impulsiveness Subscale (TCS; Bosworth & Espelage, 1995)	Impulsiveness among adolescents	Barnert et al. (2014) Himelstein (2011)	
Self-regulation and emotional states			**7**
Healthy Self-Regulation Scale (HSR; West, 2008)	Ability to self-regulate emotional responses	Himelstein et al. (2011a) Himelstein et al. (2011b)	
Profile of Mood States (PMS; McNair, Lorr & Droppelman, 1992)	Awareness of ones state of mental buoyancy or distress. (Identifies mood disturbances)	Barnert et al. (2014) Samuelson et al. (2007)	
Profile of mood states – short form. (POMS-SF; Shacham, 1983)	Psychological distress; measure of overall mood disturbance	Perelman et al. (2012)	
Prison Locus of Control Scale (PLSC; Pugh, 1994)	Perceptions of control, specifically in relation to the prison environment	Flinton (1998)	

Outcome measure used:	What it measures:	Study that includes this measure:	Number of studies in this category:
The white bear suppression inventory (Wegner & Zanakos, 1994)	Thought suppression	Bowen et al. (2006;2007)	
Trait meta-mood scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995)	Emotional intelligence; ability to recognise and manage both own and others emotions	Perelman et al. (2012)	
Quality of Life and Wellbeing			**4**
Hindi adapted Hope Scale (Sharma, Jinadal, Bahera, and Verma (1992)	Hopefulness	Chandiramani et al. (1998)	
Life orientation Test (Scheier & Carver, 1985)	Optimism	Bowen et al. (2006)	
Life Satisfaction Scale (PGI; Chandigarh, 1986)	Quality of life	Khurana & Dhar (2000)	
PGI general wellbeing scale (Moudgill, Verma, Kaur, & Pal (1986)	Overall wellbeing, including cheerfulness, relaxation, emotional control and satisfaction in life	Chandiramani at al. (1998)	
Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979)	Global self-esteem; favourable or unfavourable attitude toward self.	Samuelson et al. (2007)	
Subjective wellbeing Inventory (SWI;Nagpal & Sell, 1985)	Feelings of well-being experienced	Khurana & Dhar (2000)	
Learned helplessness scale (Verma, Mahajan, & Verma (1988)	Feeling a lack of control over ones circumstances	Chandiramani et al. (1998)	
Substance use			**3**
Daily drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985)	Alcohol use; quantity and frequency	Bowen et al. (2006; 2007) Simpson et al. (2007)	
Daily drug-taking questionnaire (Parks, 2001),	drug-use category; quantity and frequency	Bowen et al. (2006) Simpson et al. (2007)	
Drinking related locus of control scale (Donovan & O'Leary, 1978)	Perceptions of control over alcohol	Bowen et al. (2006)	

Outcome measure used:	What it measures:	Studies that include this measure:	Number of studies in this category:
Drugs Avoidance Self-Efficacy Scale (DASE; Martin, Wilkinson, & Pouplos, 1995)	Self-efficacy for addictive behaviours (i.e. drug refusal)	Lee et al. (2010)	**3**
Drug Use Identification Disorder Test (DUDIT-E; Berman, Palmstiierna, Kallmen, & Bergman, 2007)	Maps the frequency of illicit drug use, the positive and negative aspects of drug use and treatment readiness.	Lee et al. (2010)	
Monitoring the future questionnaire (MTF; Johnston et al., 1991)	Perceived risk of drug use	Himelstein (2011)	
Short inventory of problems (SIP-2R; Miller, Tonigan, & Longabaugh, 1995	Impulse control, social responsibility, and physical, interpersonal and intrapersonal consequences during past 90 days	Bowen et al. (2006; 2007) Simpson et al. (2007)	
Mindfulness			**3**
Cognitive and Affective Mindfulness Scale Revised (CAMS-R; Feldman et al., 2007)	Attentional and awareness aspects of mindfulness. As well as attitude towards experience	Perelman et al. (2012)	
Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003)	Attentional and awareness aspects of mindfulness (items designed to be free of specialized, metaphorical, and idiomatic language)	Himelstein et al. (2011)	
Mindfulness Attention Awareness Scale, Adolscent version (MAAS -A; Brown, West, Loverich & Biegel, 2011)	Attention and awareness in the present	Barnert et al. (2014)	
Personality, social and relational attitudes			**3**
Indian adapted Eysencks PEN inventory	Assessment of personality; four dimensions (1)Psychoticism (2) neuroticism (3) extroversion (4) lie	Chandiramani et al. (1998)	

Outcome measure used:	What it measures:	Studies that include this measure:	Number of studies in this category:
90- item Personality Trait Inventory (Sen, 1966)	Measures 8 personality traits *(1)* dominance *(2)* paranoid tendency *(3)* depressive tendency *(4)* emotional instability *(5)* introversion *(6)* superego *(7)* cyclothymia *(8)* social desirability	Chandiramani et al. (1998)	
Personality projection in the drawing of human figures (Machover, 1949)	Personality analysis based upon clinicians interpretations of the participants drawing of a human figure.	Chandiramani et al. (1998)	
Anomie Scale (Srole, 1956)	Breakdown of social bonds between an individual and their community.	Chandiramani et al. (1998)	
A law scale (Khan, 1989)	Attitude towards the law in India	Chandiramani et al. (1998)	
30 item Self Focus Sentence Completion (Exner, 1973)	Degree of egocentricity	Murphy (1995)	
40-item scale Criminal Propensity Scale (Sanyal & Kathpalia, 1999)	Criminal prone behavior and attitudes	Khurana & Dhar (2000)	
Influence of Therapist			**1**
The therapist and treatment evaluation questionnaire (Hazaleus & Deffenbacher, 1986)	Check for therapist input; assessed therapists interest, clarify of communication and participants satisfaction	Murphy (1995)	

Appendix 5a Clinician information sheet

Clinician Information sheet

Study Title: A mindfulness-based intervention for young offenders.

Study purpose: To develop, pilot and evaluate a mindfulness-based intervention specifically for young offenders at Polmont Young Offenders Institution.

Objectives: (1) to develop this intervention (2) to test the feasibility, acceptability, and effectiveness of delivering this intervention.

Background: Empirical evidence suggests a relationship between youth offending and poor self-regulation ability, in particular impulsivity and impaired cognitive and behavioural flexibility. Mindfulness-based interventions have shown promising results, across diverse populations, in increasing self-management skills, improving quality of life, and tempering impulsive drives. The literature suggests that offenders are more likely to desist from offending if they manage to acquire a sense of agency and control over their own lives.

Methods: We have already delivered one mindfulness-based intervention and intend to run another nine over the coming months. Each group will consist of a maximum of 10 individuals and will run for 2 hours, once a week, for the duration of 8 weeks (this may be extended to 10 weeks, depending on feedback received during the developmental stage). In total, it is our intention to recruit up to 100 individuals. We will collect quantitative measures before and after the delivery of each programme. We will also seek participant qualitative data on a sub-sample of up to 20 participants via semi-structured interviews.

Eligibility: Criteria for inclusion in the current study are:

1) Those between the age of 18 and 21;

Exclusion criteria will include:

1) Those with a formal diagnosis of a complex or enduring mental health disorder such as schizophrenia or psychosis;
2) Those identified as being actively suicidal or judged by an appropriately qualified person as unsuitable to take part;
3) Those individuals who were on remand or whose release date would coincide with the delivery of the course (i.e. they would not be able to either complete the course or would not be available to complete the 3 month follow up interview)
4) The 16 -17 year old group and the sexual offending group

Contact details: PLEASE PUT HERE WHO WILL BE THE POINT OF CONTACT FOR REFERRALS

Appendix 5b Staff information sheet

Staff information sheet Version 1 November 2013

University of Glasgow | Institute of Health & Wellbeing

Mindfulness for Wellbeing in Polmont

What changes should I expect to see?

- better ability in self-management skills
- better ability to regulate emotions (i.e. less reactive/impulsive)
- reduction in stress/anxiety
- Increase in self-reflection ability

STAFF INFORMATION SHEET

Please take some time to read the following information carefully

If you would like more information about either the mindfulness group or the study please contact David Rae, who will kindly forward any queries onto me.

Introduction

Mindfulness can help people train their minds to be in the present and feel more in control of what's going on in their lives. Over the coming months we will run a number of mindfulness-based groups at Polmont. These groups are new to Polmont and we are doing a study to see if the young people here like them and get benefit from this novel intervention. We have provided separate information sheets for participants explaining what the study will involve, if they decide to take part.

What is the purpose of this study?

If people practice mindfulness it can improve their wellbeing and help them cope with strong, intense feelings that get in the way. However, it has not been tried in Polmont before and we want to know whether it will help people here. We want to know whether people here are interested in trying mindfulness? Whether they like mindfulness and whether it works for them?

Are there any risks involved for the participants?

Those who decide to participate may feel a little bit anxious or nervous about taking part in group activities, talking about themselves and their experience and doing mindful practices that they have not done before. However, we will make sure that they are supported and helped through any exercise that they find hard.

Note: Everything that they will be asked to do will be properly explained beforehand. We will never force anyone to take part and each person is free to opt out of the group, study or both at any stage.

What are the possible benefits for those taking part?

There may or may not be direct benefit to the young person. They may find the group helpful and may benefit from discussing their experience with others.

Why Polmont?

We would like to hear the views of the young people who are currently being housed at Polmont. The information that is collected here will help us to learn more about treatment options for reducing impulsive behaviour, dealing with difficult feelings and intrusive thoughts and improving overall wellbeing.

What does the study entail?

The young people will be invited to participate in the 10-week Mindfulness-based group. Each group will last two hours and will be delivered once a week at the activity centre at Polmont.

OR

Depending on how many people want to take part, some of the potential participants will be placed on a waiting list for the next time mindfulness is taught.

Both groups:

Everyone will be asked to fill out some tick-box forms before the group begins and again when it finishes. Filling out these forms will take no more than 30 minutes.

Some of the participants will be asked to meet with the interviewer to chat about their experience of the group. Those asked will be chosen randomly. This means that they will be selected by chance. This will take place three months after the group has been completed.

The information provided by this study will help us determine if the group is effective and of use to the young people here. The semi-structured interviews will be recorded in order to make sure that we have an accurate record of what was discussed. All participants will be assured that there is no right or wrong answer. It will be explained to them that the researcher is interested in hearing about their own, individual experience of the group.

What support can I offer?

Mindful qualities such as non-judging, patience, genuine interest, openness and trust are particularly important. Such qualities may allow the young person to feel able to speak about their experience, deepen their understanding and feel safe to practice the new techniques that they are learning.

Each participant will be informed of the importance of personal practice, which will involve them committing to a daily practice for the duration of the course. Carving out a regular practice, and indeed learning a new technique, can be difficult. Your encouragement and reinforcement of the benefits of maintaining this practice may greatly impact the outcome.

INFORMATION SHEET FOR STAFF MEMBERS

Appendix 5c Participant information sheet

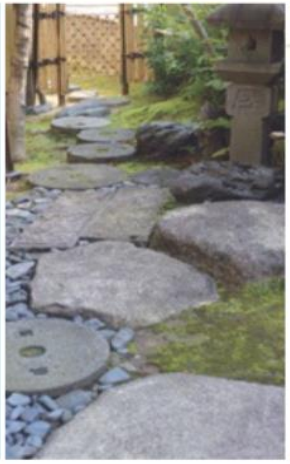
Participant Information Sheet Version 3 November 2013

University of Glasgow | Institute of Health & Wellbeing

Mindfulness for Wellbeing in Polmont

What changes should I expect to see?

- feeling less stressed
- improved sleep
- feeling less reactive/impulsive
- better able to cope with strong or difficult feelings
- improved feelings of wellbeing



PARTICIPANT INFORMATION SHEET

If you would like more information about either the mindfulness group or the study please contact your personal officer and ask him to get in touch with David Rae in the Psychology Department.

Please take some time to read the following information carefully

Introduction

Mindfulness helps people to train their minds to be in the present and feel more in control of what's going on in their lives. Over the coming months we will run a number of mindfulness-based groups at Polmont. These groups are new to Polmont and we are doing a study to see if you like them and they work for you. Before you make a decision to take part in this group and the study it is important for you to understand why the research is being done and what it will involve for you.

What is the purpose of this study?

If people practice mindfulness it can improve their wellbeing and help them cope with strong, intense feelings that get in the way. Mindfulness has not been tried in Polmont before and we want to know whether it will help people here. We want to know: Are people in Polmont interested in trying mindfulness? Do they like it? Do they find it useful?

Are there any risks involved?

If you decide to take part, you may feel a little bit nervous about:

- taking part in group activities
- talking about yourself and your experience
- doing mindful practices that you have not done before.

However, we will make sure that you are supported and helped through any exercise that you find hard.

Note: Everything that you will be asked to do will be explained fully to you. You will never be forced to do anything that you do not want to and will always have an option to participate or not. Your participation in this study is voluntary, which means that you are free to withdraw at any stage.

What are the benefits for taking part?

You may find the group helpful and may benefit from talking about your experience with others.

Why have I been chosen?

You have been chosen because we are interested in your views.

What will it involve for me?

You will be invited to participate in the 10-week Mindfulness group. Each group will last 2 hours and will be delivered once a week at the activity centre at Polmont.

OR

Depending on how many people want to take part, you may be placed on a waiting list for the next time mindfulness is taught.

Everyone will be asked to fill out some tick-box forms before the group begins and again when it finishes. Filling out these forms will take no more than 30 minutes.

In addition to this I will meet with some of you to chat about your experience of the group. Those asked will be chosen randomly. This means that they will be selected by chance .This will be arranged three months after the group has been completed.

Our meeting will be recorded in order to make sure that I have an accurate record of what we talked about.There is no right or wrong answer. I would just like to know about your experience of the group. The information you provide will help us determine if the group is effective and useful for you.

What happens to the results?

All the views will be gathered together and written in a report (with any identifiable details removed). They will also be published in a journal for other people to read.

This study is partially funded by the Scottish Government Justice Department.

What next?

If you are interested in attending this group there will be an opportunity to meet with both the mindfulness facilitator and myself. During this time we will answer any questions that you may have. This will usually take place a week before the group begins. If you decide that you would like to take part we will also use this session to complete some tick box forms.

If you are interested please let your personal officer know and the necessary arrangements will be made.

Will my participation be confidential?

All information which is collected about you will be kept strictly confidential, to the extent allowed by the law. Any information about you will have your name and identifiable details removed so that you cannot be recognised from it.

Important note:

I would need to breach confidentiality if what you tell me::

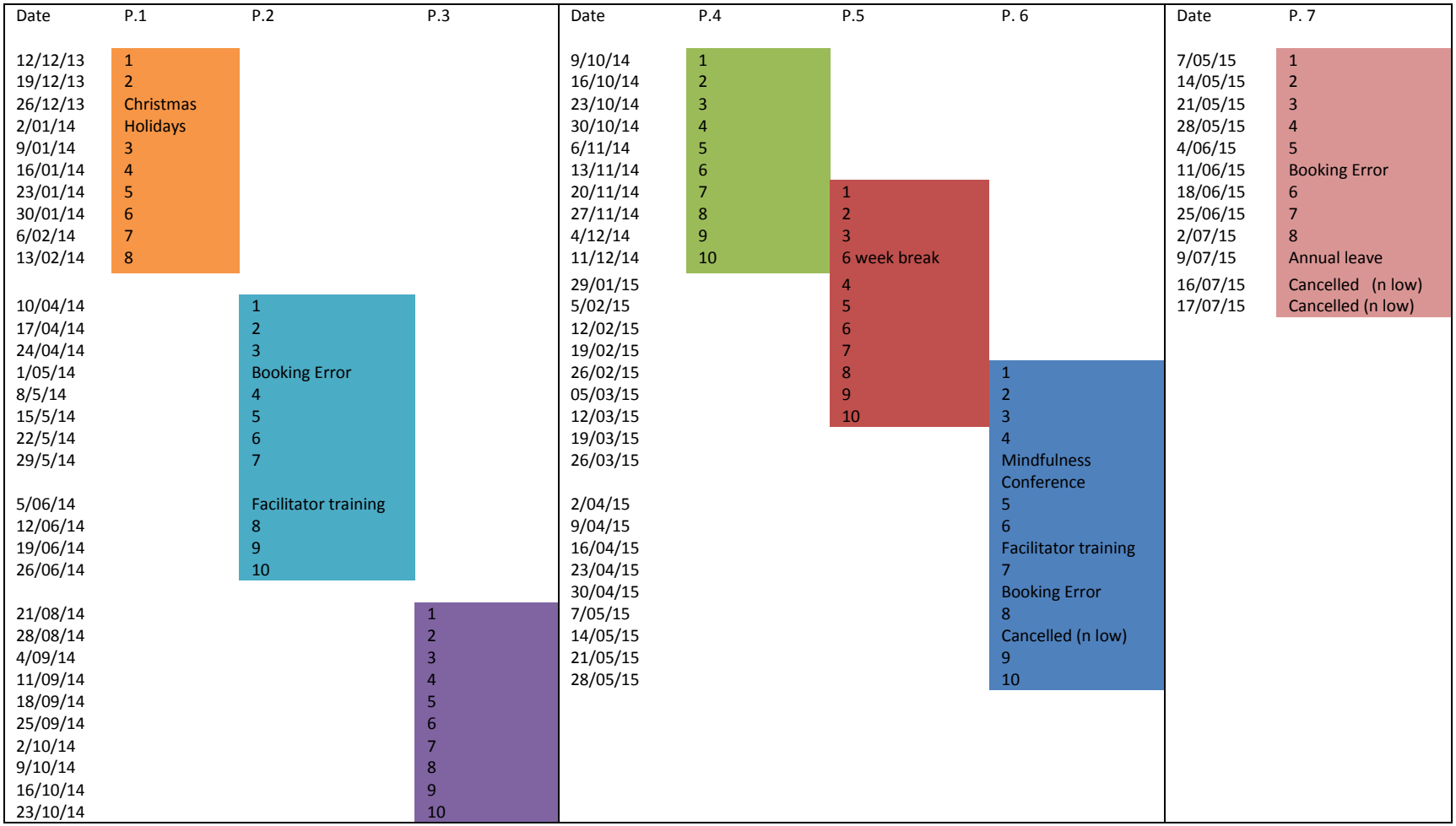
- concerns your safety or the safety of others
- involves the child protection act

If this situation arose I would inform you that I must breach confidentiality and then pass this information to the relevant agencies.

Thank you for taking the time to read this leaflet

Appendix 6 Course delivery timeline

Timeline outlining delivery of all programmes, including disruptions in delivery



Appendix 7 Participant consent form

A Mindfulness-based Intervention for young people at Polmont

Consent Form

Please initial box

The Group Programme

I have read and understand the participant information sheet for the above study and have had the opportunity to ask questions ☐

My role

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights or treatment at Polmont being affected ☐

Interviews

I understand that the interviews will be recorded, details anonymised (i.e. will not contain my name or personal information) and the information carefully looked after at all times ☐

Confidentiality

I understand that the information I share is confidential unless it:

may involve harm to myself or others
may involve the child protection act ☐

Statement of Consent

I agree to take part in the above study. ☐

Name of subject Signature	Date	
Name of Person taking consent (if different from researcher)	Date	Signature
Researcher	Date	Signature

(1 copy for subject; 1 copy for researcher)

This project is funded by the Scottish Government

Appendix 8 Research Pack

Version 3 (26/03/2014)

Mindfulness for Wellbeing

Before and after the Mindfulness sessions ....

Inside this pack are four sections of questions that will help us understand more about your experience of mindfulness and any changes that may have occurred from attending the course i.e. did it help you feel better, handle you emotions better, reduce anxiety, improve your sleep etc ?. We would be grateful if you would complete these questions at the start and again at the end of the Mindfulness group.

The questions are designed to get your views on:

- how you think and respond to situations
- your general health
- how you manage stress and stay well

Please take time to read the questions over, and answer honestly. You can ask the researcher for help if you find any of the questions difficult to answer or need clarification on any of the questions. If there are questions that you would prefer not to answer it is ok to leave them blank. However, the depth and completeness of your answers will play an important part in providing a more detailed understanding of this intervention and its usefulness to you.

The information you provide will be treated in confidence.

Thank you for agreeing to participate in this study.

Practice ID | | |

Today's Date | | . | | . | |

This study is led by the University of Glasgow

University of Glasgow | Institute of Health & Wellbeing

SECTION A: ABOUT YOUR THINKING AND BEHAVIOUR

Impulsivity - Conflict Survey (Bosworth & Espelage, 1995)

People differ in the ways that they think and act in different situations.

Please √ the box that corresponds to how often the statement happens to you.

	Never	Seldom	Sometimes	Often	Always
I have a hard time sitting still	☐	☐	☐	☐	☐
I start things but have a hard time finishing them	☐	☐	☐	☐	☐
I do things without thinking	☐	☐	☐	☐	☐
I need to use a lot of self-control to keep out of trouble	☐	☐	☐	☐	☐

SECTION A: ABOUT YOUR THINKING AND BEHAVIOUR

Barratt Impulsivity Scale (BIS 11; Patton, Stanford, & Barratt, 1995)

People differ in the ways that they think and act in different situations.

Please √ the box that most applies to you. Try not to spend too long on any one statement.

Overall, how do you rate yourself at …	Rarely/ Never	Occasionally	Often	Almost always/ always
I plan tasks carefully	☐	☐	☐	☐
I do things without thinking	☐	☐	☐	☐
I make-up my mind quickly	☐	☐	☐	☐
I am happy go lucky	☐	☐	☐	☐
I don't "pay attention"	☐	☐	☐	☐
I have "racing" thoughts	☐	☐	☐	☐
I plan trips well ahead of time	☐	☐	☐	☐
I am self controlled	☐	☐	☐	☐
I concentrate easily	☐	☐	☐	☐
I save regularly	☐	☐	☐	☐
I "squirm" at plays or lectures	☐	☐	☐	☐
I am a careful thinker	☐	☐	☐	☐
I plan for job security	☐	☐	☐	☐
I say things without thinking	☐	☐	☐	☐
I like to think about complex problems	☐	☐	☐	☐
I change jobs	☐	☐	☐	☐
I act "on impulse"	☐	☐	☐	☐
I get easily bored when solving thought problems	☐	☐	☐	☐
I act on the spur of the moment	☐	☐	☐	☐
I am a steady thinker	☐	☐	☐	☐

continued....

Overall, how do you rate yourself at …	Rarely/ Never	Occasionally	Often	Almost always/ always
I change residences	☐	☐	☐	☐
I buy things on impulse	☐	☐	☐	☐
I can only think about one thing at a time	☐	☐	☐	☐
I change hobbies	☐	☐	☐	☐
I spend or charge more than I earn	☐	☐	☐	☐
I often have extraneous thoughts when thinking	☐	☐	☐	☐
I am more interested in the present than the future	☐	☐	☐	☐
I am restless at the theatre or lectures	☐	☐	☐	☐
I like puzzles	☐	☐	☐	☐
I am future oriented	☐	☐	☐	☐

SECTION B: ABOUT YOUR HEALTH & WELLBEING

Sense of Coherence- Orientation to Life Questionnaire (SOC-13; Antonovsky, 1987)

This section will ask you questions about how you manage stress and stay well.

Please read the questions below and circle the response that best applies to you.

Do you have feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
very seldom or never						*very often*

Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?

1	2	3	4	5	6	7
never happened						*always happened*

Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
never happened						*always happened*

Until now your life has had:

1	2	3	4	5	6	7
no clear goals or purpose at all						*very clear goal and purpose*

Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
very often						*very seldom or never*

Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5	6	7
very often						*very seldom or never*

Doing the things you do every day is:

1	2	3	4	5	6	7
a source of deep pleasure and satisfaction						*a source of pain and boredom*

Do you have very mixed-up feelings and ideas?

1	2	3	4	5	6	7
very often						*very seldom or never*

Does it happen that you have feelings inside you would rather not feel?

1	2	3	4	5	6	7
very often						*very seldom or never*

Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
never						*very often*

When something happened, have you generally found that:

1	2	3	4	5	6	7
you overestimated or underestimated its importance						*you saw things in the right proportion*

How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
very often						*very seldom or never*

How often do you have feelings that you're not sure you can keep under control?

1	2	3	4	5	6	7
very often						*very seldom or never*

SECTION B: ABOUT YOUR HEALTH & WELLBEING

General Health Questionnaire (GHQ- 12; Goldberg & Williams, 1988)

We are interested in your opinion of how your health has been **OVER THE PAST FEW WEEKS.**

Please read the questions below and circle the response that best applies to you.

Have you recently:

been able to concentrate on what you're doing?

better than usual	*same as usual*	*less than usual*	*much less than usual*
0	*1*	*2*	*3*

lost much sleep over worry?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

felt that your are playing a useful part in things?

more so than usual	*same as usual*	*less so than usual*	*much less than usual*
0	*1*	*2*	*3*

felt capable of making decisions about things?

more so than usual	*same as usual*	*less than usual*	*much less than usual*
0	*1*	*2*	*3*

felt constantly under strain?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

felt you couldn't overcome your difficulties?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

been able to enjoy your normal day to day activities?

more so than usual	*same as usual*	*less so than usual*	*much less than usual*
0	*1*	*2*	*3*

been able to face up to your problems?

more so than usual	*same as usual*	*less than usual*	*much less than usual*
0	*1*	*2*	*3*

been feeling unhappy or depressed?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

been losing confidence in yourself?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

been thinking of yourself as a worthless person?

not at all	*no more than usual*	*rather more than usual*	*much more than usual*
0	*1*	*2*	*3*

been feeling reasonably happy, all things considered?

more so than usual	*same as usual*	*less so than usual*	*much less than usual*
0	*1*	*2*	*3*

SECTION C: ABOUT YOUR DAY TO DAY EXPERIENCES

Mindfulness Measure (Camm; Greco, Baer, & Smith, 2010)

We would like to know more about your day to day experiences.

Please read each sentence. Then, circle the number that reflects ***how often*** each sentence is true for you.

	Never True	Rarely True	Sometimes True	Often True	Always True
I get upset with myself for having feelings that don't make sense	0	1	2	3	4
At school, I walk from class to class without noticing what I'm doing	0	1	2	3	4
I keep myself busy so I don't notice my thoughts or feelings	0	1	2	3	4
I tell myself that I shouldn't feel the way I'm feeling	0	1	2	3	4
I push away thoughts that I don't like	0	1	2	3	4
It's hard for me to pay attention to only one thing at a time	0	1	2	3	4
I get upset with myself for having certain thoughts	0	1	2	3	4
I think about things that have happened in the past instead of thinking about things that are happening right now	0	1	2	3	4
I think that some of my feelings are bad and that I shouldn't have them	0	1	2	3	4
I stop myself from having feelings that I don't like	0	1	2	3	4

SECTION C: ABOUT YOUR DAY TO DAY EXPERIENCES

Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003)

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be.

1 *almost always*	2 *very frequently*	3 *somewhat frequently*	4 *somewhat infrequently*	5 *very infrequently*	6 *almost never*

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what is happening in the present	1	2	3	4	5	6
I tend to walk quickly to get where I am going without paying attention to what I experience along the way	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time	1	2	3	4	5	6
It seems that I am "running on automatic," without much awareness of what I'm doing	1	2	3	4	5	6
I rush through activities without being really attentive to them	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time	1	2	3	4	5	6
I drive places on 'automatic pilot' and then wonder why I went there	1	2	3	4	5	6
I find myself preoccupied with the future or the past	1	2	3	4	5	6
I find myself doing things without paying attention	1	2	3	4	5	6
I snack without being aware that I'm eating	1	2	3	4	5	6

SECTION D: ABOUT YOU

This section asks for some background details about you. These will help in the analysis of the responses obtained in this study.

1. What is your age? ☐☐ *years*

please √ one box to indicate your answer

2 What is your ethnicity?

☐ White (Scottish)	☐ White (other British)
☐ White (other)	☐ Mixed Race
☐ Asian (Indian)	☐ Asian (Pakistani)
☐ Asian (Bangladeshi)	☐ Asian (Chinese)
☐ Asian (other)	☐ Black (Caribbean)
☐ Black (African)	☐ Black (other)
☐ Other (please specify)	_____

3 How long have you been in Polmont? _____

4 What is the length of your sentence? _____

5 Is this your first time in a Young Offenders Institute? _____

If not, how many times have you been in a Young Offenders Institute? _____

6 **What was your employment status before you were housed at Polmont?**

- ☐ employed full time
- ☐ employed part time
- ☐ unemployed, seeking work
- ☐ unemployed, unfit to work
- ☐ other (please specify)

_____

7 **Have you completed:**

- ☐ Primary School
- ☐ Secondary School
- ☐ College
- ☐ University
- ☐ Other Training (please specify)

8 **At what age did you finish school:** _____

9 **Please list any other qualifications you have:**

Qualification	*Year Obtained*

10 **Do have previous experience of meditation, mindfulness, or yoga?** *please circle* **YES** **NO**

If yes, please provide some details about your practice

_____

_____

_____

1:

11 Have you attended other training, groups or courses at Polmont? *please circle* **YES NO**

If yes, please list the names of these

_____

_____

_____

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

SECTION E: ABOUT YOUR EMOTIONS

Please answer the following questions using the scale from 1-5

1 Almost never
2 Sometimes
3 About half the time
4 Most of the time
5 Almost always

1	I am clear about my feelings	☐
2	I pay attention to how I feel	☐
3	I experience my emotions as overwhelming and out of control.	☐
4	I have no idea how I am feeling.	☐
5	I have difficulty making sense out of my feelings.	☐
6	I am attentive to my feelings.	☐
7	I know exactly how I am feeling.	☐
8	I care about what I am feeling	☐
9	I am confused about how I feel.	☐
10	When I'm upset, I acknowledge my emotions.	☐
11	When I'm upset, I become angry with myself for feeling that way.	☐
12	When I'm upset, I become embarrassed for feeling that way.	☐
13	When I'm upset, I have difficulty getting work done	☐
14	When I'm upset, I become out of control.	☐
15	When I'm upset, I believe that I will remain that way for a long time.	☐
16	When I'm upset, I believe that I'll end up feeling very depressed.	☐

17	When I'm upset, I believe that my feelings are valid and important	☐
18	When I'm upset, I have difficulty focusing on other things.	☐
19	When I'm upset, I feel out of control..	☐
20	When I'm upset, I can still get things done.	☐
21	When I'm upset, I feel ashamed with myself for feeling that way.	☐
22	When I'm upset, I know that I can find a way to eventually feel better.	☐
23	When I'm upset, I feel like I am weak.	☐
24	When I'm upset, I feel like I can remain in control of my behaviors	☐
25	When I'm upset, I feel guilty for feeling that way.	☐
26	When I'm upset, I have difficulty concentrating.	☐
27	When I'm upset, I have difficulty controlling my behaviors.	☐
28	When I'm upset, I believe there is nothing I can do to make myself feel better.	☐
29	When I'm upset, I become irritated with myself for feeling that way.	☐
30	When I'm upset, I start to feel very bad about myself.	☐
31	When I'm upset, I believe that wallowing in it is all I can do.	☐
32	When I'm upset, I lose control over my behaviors.	☐
33	When I'm upset, I have difficulty thinking about anything else.	☐
34	When I'm upset, I take time to figure out what I'm really feeling.	☐
35	When I'm upset, it takes me a long time to feel better.	☐
36	When I'm upset, my emotions feel overwhelming.	☐

Appendix 9 Rehabilitative programmes offered at HMYOI Polmont

Intervention	Description	Delivered by:
Constructs	Two-hour sessions, delivered over 26 weeks. Group based intervention, for young men > 18, designed to reduce reoffending. The intervention aims to assist the young men to become better able to: *1)* Problem solve *2)* Implement pro-social behaviour *3)* Desist from re-offending	Psychology department
Control of anger related emotions (CARE)	Two-hour sessions run twice a week, comprised of 25 sessions. This programme focuses on emotional control, placing particular emphasis on anger and feelings of injustice. The emphasis is not to 'force' change or label emotions as 'bad' but rather to help the young men recognise and agree with the therapeutic benefits of anger reduction; finding effective ways of interpreting and communicating distressing emotions.	Psychology department
Reducing risk of violence in the community	Two-hour sessions focusing on 'knife crime awareness' delivered right before release from the YOI. Teaching includes a range of video clips highlighting the negative impact of knife crime. Co-facilitated by previously incarcerated young men.	Violence Risk Unit (VRU)
First-step drug education programme	Two-hour sessions, delivered four times a week, over a period of four weeks i.e. a total of 16 sessions. Programme aims to heighten awareness and knowledge in relation to drugs, their effects, and associated harm i.e. legal and long-term health issues of drug misuse. Provides space for participants to explore their own personal drug use and its role in their offending behaviour.	Onsite Polmont staff
Alcohol Awareness Programme (AA)	Two-three hour sessions, delivered over a duration of eight weeks. Each session covers a specific topic, including myths and facts around alcohol, safe levels of alcohol use, physical and medical effects, common patterns of drinking, relaxation, problem solving, and accessing further support.	Volunteers and local charity groups (i.e. Alcohol anonymous)
Substance related offending behaviour (SROB)	This programme is delivered in a rolling format, where participants attend those sessions identified by their treatment supervisor as relevant to their individualised treatment plan. The programme is designed to specifically address substance related offending behavior, for those identified as medium to high risk for re-offending.	Polmont staff

Appendix 10a Confirmation of permission to use SOC-11 self-report questionnaire

December 4, 2013

PhD Student Sharon Byrne
Institute of Health and Wellbeing
General Practice and Primary Care
University of Glasgow
1 Horselethill Road
Glasgow G12 9LX
(s.byrne.1@research.gla.ac.uk)

Dear PhD Student Sharon Byrne,

I hereby grant permission to use the 13-item version of the Sense of Coherence (Orientation to Life) Questionnaire, originally found in *Unraveling the mystery of health: How people manage stress and stay well*, by Aaron Antonovsky (Jossey-Bass Publishers, 1987).

The permission is granted upon fulfillment of the following conditions:

1. You may not redistribute the questionnaire (in print or electronic form) except for your own professional or academic purposes and you may not charge money for its use. If administered online, measures should be taken to insure that (a) access to the questionnaire be given only to participants by means of a password or a different form of limited access, (b) the questionnaire should not be downloadable, and (c) access to the questionnaire should be time-limited for the period of data collection, afterwhich it should be taken off the server. Distributing the questionnaire to respondents via email is *not* permited. Finally, any electronic version of the questionnaire which you may have for your research purposes (other than distribution to research participants) should be in PDF format including password protection for printing and editing.
2. In any publication in which the questionnaire is reprinted, reference to the abovementioned source should be given, and a footnote should be added saying that the questionnaire is reprinted with the permission of the copyright holder.
3. The copyright of the Sense of Coherence (Orientation to Life) Questionnaire remains solely in the hands of the Executor of the Estate of Aaron Antonovsky.

If possible, I would appreciate receiving a copy of any forthcoming paper concerning a study in which the SOC questionnaire has been used, for private use in building an SOC publication database.

Sincerely,

Avishai Antonovsky, Ph.D.
Estate of Aaron Antonovsky
Department of Education and Psychology
The Open University
Israel

On behalf of Avishai Antonovsky:

Monica Eriksson, PhD, Associate Professor
Department of Nursing, Health & Culture
University West, Center on Salutogenesis
Trollhättan, Sweden

Appendix 10b Confirmation of permission to use CAAM self-report questionnaire

Wednesday, 13 November 2013 20:19

Hi Sharon,

Please feel free to use the CAMM. I'm sending along the AFQ-Y, a related measure, in case you might be interested.

Best wishes,
Laurie

Laurie Greco, Ph.D.

Clinical Director, Chronic Pain Rehabilitation Programs
Evidence-Based Psychotherapy Coordinator
Chalmers P. Wylie VA ACC
420 North James Rd.
Columbus, OH 43219

Phone: (614) 257-5200, ext. 2035

Appendix 11a Ethical permission – University of Glasgow

16th December 2013

Dear Sharon Byrne «Principal_Investigator»

MVLS College Ethics Committee

Project Title: A Mindfulness-based Intervention for Young Offenders in Scotland
Project No: 200130021

The College Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. They are happy therefore to approve the project, subject to the following conditions

- Confirmation is obtained from Human Resources, University of Glasgow, as to whether further Enhanced Disclosure is required.
- PIL and consent form have version numbers and dates.
- Project end date: June 2015
- The research should be carried out only on the sites, and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

Prof. Andrew C. Rankin
Deputy Chair, College Ethics Committee

Andrew C. Rankin
Professor of Medical Cardiology
BHF Glasgow Cardiovascular Research Centre
College of Medical, Veterinary & Life Sciences
University of Glasgow, G12 8TA
Tel: 0141 211 4833
Email: andrew.rankin@glasgow.ac.uk

Appendix 11b Ethical permission – Scottish Prison Service (SPS)

HEADQUARTERS
Research
Strategy Unit
Partnership & Commissioning

Calton House
5 Redheughs Rigg
EDINBURGH
EH12 9HW

Direct dialing: 0131 244 8771
Switchboard: 0131 244 8745
Fax: 0131 244 3651

Email: james.carnie@sps.pnn.gov.uk

Sharon Byrne
Institute of Health and Well-Being
House 2 Room 201
124 Observatory Road
University of Glasgow
Glasgow
G12 8UZ

28 August 2013

Dear Sharon

THE DEVELOPMENT AND EVALUATION OF A MINDFULNESS-BASED INTERVENTION FOR YOUNG OFFENDERS IN SCOTLAND

Following the consideration of your research proposal by the SPS Research Access and Ethics Committee (RAEC) at its meeting earlier this summer, I can confirm that the Committee is content to approve access for your project on the development and evaluation of a mindfulness-based intervention for young offenders in Scotland

On-site access arrangements are already in place and you should continue to liaise with the management team at HMYOI Polmont regarding the conduct of the study.

Attached are our standard regulations which I would be grateful if you could sign and return hard copy to me in Calton House, at the address shown.

On behalf of the RAEC may I wish you well in the completion of the research and SPS looks forward to receiving a copy of your dissertation in due course.

Yours sincerely

Dr Jim Carnie
SPS Research

Appendix 11c Ethical consideration – National Health Service (NHS)

NHS
Greater Glasgow and Clyde

WoSRES
West of Scotland Research Ethics Service

West of Scotland Research Ethics Service
Ground Floor – The Tennent Institute
Western Infirmary
38 Church Street
Glasgow G11 6NT

Sharon Byrne
Institute of Health and Wellbeing
College of Medical, Veterinary and Life Sciences
General Practice and Primary Care
University of Glasgow
1 Horselethill Road
Glasgow G12 9LX

Date 18th Nov 2013
Your Ref
Our Ref WoS ASD 934
Direct line 0141 211 2126
Fax 0141 211 1847
E-mail Judith.Godden@ggc.scot.nhs.uk

Dear Ms Byrne

Full title of project: A Mindfulness-based Intervention for Young Offenders in Scotland

You have sought advice from the West of Scotland Research Ethics Service Office on the above project. This has been considered by the Scientific Officer and you are advised that based on the submitted documentation (email correspondence 6th Oct 2013) it does not need NHS ethical review under the terms of the Governance Arrangements for Research Ethics Committees (A Harmonised Edition). This advice is based on the following.

- The participants are neither patients nor relative or carers of patients (recruited for this reason). The participant population will be derived from a young offender's institution within Scotland. The intervention has been carefully considered and felt not to come under the definition of a medical intervention and therefore the protocol falls out with the remit of an NHS research ethics committee.

Note that this advice is issued on behalf of the West of Scotland Research Ethics Service and does **not** constitute a favourable opinion from a REC. It is intended to satisfy journal editors and conference organisers and others who may require evidence of consideration of the need for ethical review prior to publication or presentation of your results.

However, if you, your sponsor/funder or any NHS organisation feels that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further.

Kind regards

Dr Judith Godden, WoSRES Scientific Officer/Manager

Appendix 11d Ethical amendment to protocol – name change

8th July 2014

Dear Sharon Byrne
«Principal_Investigator»
MVLS College Ethics Committee

Project Title: A Mindfulness-based Intervention for Young Offenders in Scotland
Project No: 200130021

The College Ethics Committee has reviewed your application for amendments and has agreed that there is no objection on ethical grounds to the proposal to: (1) changing the name from 'Mindfulness' to 'Inner Strength' and (2) delivery at various locations and times throughout the prison.

These approvals are subject to the following conditions:

- The research should be carried out only on the sites and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

Prof. Andrew C. Rankin
Deputy Chair, College Ethics Committee

Andrew C. Rankin
Professor of Medical Cardiology
BHF Glasgow Cardiovascular Research Centre
College of Medical, Veterinary & Life Sciences
University of Glasgow, G12 8TA
Tel: 0141 330 2895
e-mail: andrew.rankin@glasgow.ac.uk

Appendix 11e Ethical amendment to protocol - changes to recruitment approach

4th July 2014

Dear Sharon Byrne
«Principal_Investigator»
MVLS College Ethics Committee

Project Title: A Mindfulness-based Intervention for Young Offenders in Scotland
Project No: 200130021

The College Ethics Committee has reviewed your application for amendments and has agreed that there is no objection on ethical grounds to the proposal to: (1) provide a mindfulness taster session during 'bootcamp' week and (2) advertise via the prison radio.
These approvals are subject to the following conditions:

- The research should be carried out only on the sites and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

Prof. Andrew C. Rankin
Deputy Chair, College Ethics Committee

Andrew C. Rankin
Professor of Medical Cardiology
BHF Glasgow Cardiovascular Research Centre
College of Medical, Veterinary & Life Sciences
University of Glasgow, G12 8TA
Tel: 0141 330 2895
e-mail: andrew.rankin@glasgow.ac.uk

Appendix 12 Mindfulness-based intervention activity sheet

Activity	Description	Purpose	Learning outcome
Inspirational Figures	Asked to reflect on three people they respect and admire.	Designed to help the participants to reflect on core values.	Recognising qualities and characteristics they appreciate and value (self and others).
Holding arms up	Asked to hold their arms out in front of their body.	To become aware of unpleasant sensations. Notice impulse to react.	Notice own capacity to be present with difficulty without being controlled by it.
Push hands	Kinaesthetic exercise; where participants are asked to (1) push partners hands and notice resistance and (2) hold arms up and feel weight.	To help the participant become aware of how they resond to 'resistance'; *what do you do when you come up against difficulties or blocks?*	Introducing the idea of 'choice'; encouraging the participant to think about a challenge in different ways; working with difficulty, not against it.
Stimulus response model	Participants were given a badge, saying *'make me annoyed'.*	Become aware of things that provoke a reaction; *What pushes your buttons?*	Being able to step back, create a space and respond wisely at challenging times.
Holding ice	Asked to hold a cube of ice in their hand for a short period of time.	Similar to 'Holding arms up' activity.	This practice provides a concrete and fun way of helping participants notice their own relationship with unpleasant sensations
Chill to be still	Asked to sit in silence, without moving, for five minutes.	To notice any distractions in the mind and body, such impulses and temptations to move. Being aware of these without reacting.	To notice the activity of the mind and its response to both internal and external stimuli.
Story of John*	Story read to participants*:* *John was on his way to school.* *He was worried about the maths lesson.* *He was not sure he could control the class.* *It was not part of a janitor's duties.*	To show how the mind can proliferate thoughts with minimal information.	To become aware of the nature of thinking and recognise that *'thoughts are not facts'.*
ABC Model of thought and emotion*	A cognitive behavioural therapy technique for analysisng thoughts, emotions and behaviours.	Used to illustrate the influence thoughts have over emotions and subsequent actions.	To recognise thinking errors and false assumptions
The story of two wolves	A Cherokee legend about a fight between two wolves – one is evil and the other is good. A fight which is going on inside of us all and the one that wins is the one we feed.	Recognise inner conflict, which is represented by the two wolves (Good and Bad).	Knowing that you have a choice.
My life in five years	Participants were asked to imagine working hard at the goals they would like to achieve and then envision what their life would look like in five years.	Creating achievable goals to work toward; encouraging participants to think about the future	Encourage hope and motivation to make positive changes that help them move closer to achieving their goals.

Appendix 13 Invitation to take part in the mindfulness course

Dear Mr

In the next few months, we are looking to start a new group that is being run as part of a study with Glasgow University.

This programme aims to help build inner strength using Mindfulness skills. These skills can help reduce negative emotions, like stress, anxiety, and help people to cope better with anger.

We are looking to run the programme within Activities 2.

If you would like more information, are interested in attending, or do not want to take part, please fill out the short form on the other page, and return it to the Desk Officer. I will collect them from there and make time to see you, and explain a little more about the programme.

Thanks for your time,

David Rae
Forensic Psychologist in Training
HM YOI Polmont

Mindfulness Group Referral Form

Name:

Prisoner Number:

I **would** like to attending/get more information about the Mindfulness Group that is being delivered at Polmont. ☐

I **would not** like to attending/get more information about the Mindfulness Group that is being delivered at Polmont. ☐

Signature:……

Date……

Appendix 14 'Inner Strength' Poster

INNER STRENGTH PROGRAMME

The Inner Strength Programme is a 10 week course focused on training the mind. Although our mind is involved in everything we do in life, we hardly ever give it much attention or attempt to train it. But just as we can train the body — to develop our strength or stamina — we can train the mind to enable us to approach life with greater confidence, focus and happiness.

You'll learn meditation techniques which will enable you to:

- sleep better
- let go of anxiety
- increase confidence
- focus on what's important
- control anger
- relax deeply

The Inner Strength Programme is for anyone interested in realising their potential. To participate speak to your personal officer.

One participant described the programme as "absolutely brilliant".

Appendix 15 Radio advertisement script

Radio Advert

We all recognise that we can train the body. When we want to build our stamina, our flexibility, and our strength, there's exercises we can do that can have a big effect. And of course if we want to do well in any kind of sport we know that it's essential to train.

The amazing thing is that this is also true for the mind. We can train the mind to become calmer, to become happier, stronger, and more confident. And we do this by learning to bring our mind into the present moment. So often our mind is lost in thoughts, or running into the past and future and rarely are we actually 100% in the present moment. The interesting thing is that learning to train the mind to be in the present moment cannot only be very beneficial to us, but can also be very enjoyable, relaxing and energising.

The Inner Strength Programme is an 11-week programme that involves learning how to train the mind to be stronger and more present with what's happening from moment to moment. And when we learn to really be in the moment, that is where we discover our innate potential to be courageous, to be strong, to be relaxed, to be calm.

One of the young men who completed the programme described it as "*absolutely brilliant"*. What's more this way of training the mind has been found to help with depression and anxiety; to help people sleep better; to enjoy life more and to be more effective in achieving what we want to achieve.

The programme is designed to be both fun and beneficial. It runs for 11 weeks and begins with a 1-hour taster session where people have the chance to learn more about the programme and decide whether or not they want to do it. To find out more or join the next session speak to your residential officer.

Appendix 16 Mindfulness taster session outline

Mindfulness Taster Session

Objectives:

- To provide an engaging and compelling information session (approximately 1 hour in length) to potential candidates for the mindfulness programme.
- For the participants to learn what mindfulness is, both conceptually and experientially.
- To explain the rationale for practising mindfulness.
- To give potential candidates an overview of what they can expect on the course and what will be expected of them.

Session outline:

1) Overview of the session 5 minutes
   - What is the point of the session?
   - What will the session cover?

2) Icebreaker 15-20 minutes
   - Participants break into pairs and discuss the following question *"what superpower would you choose to have?"*
   - After 2 minute discussion the group comes back together and shares answers.
   - Some time for introductions

3) What is the mind? 10 minds
   - Discussion around the question *'what is the mind'*?
   - Collectively find the answer – the mind is involved in everything.
   - Positive qualities of the mind enable us to do well in life.

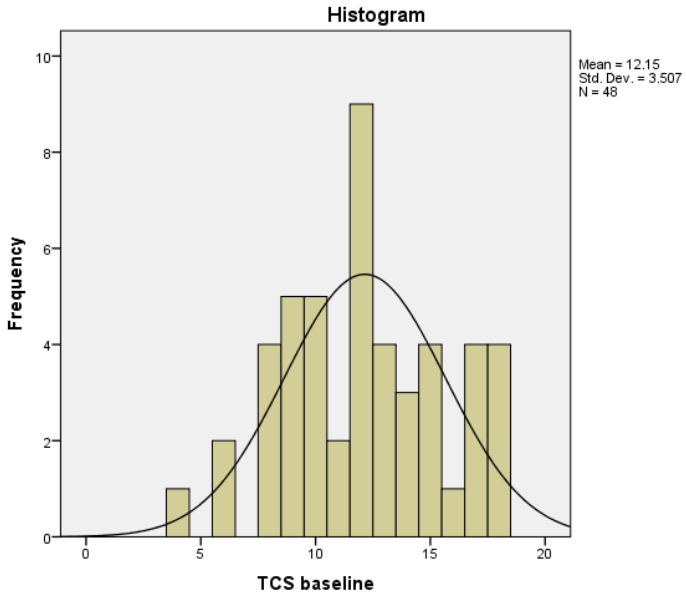
4) We can train the mind! 5 mins
   - Explanation of neuroplasticity.

5) How do we train the mind? 5 mins
   - To be in the present moment.

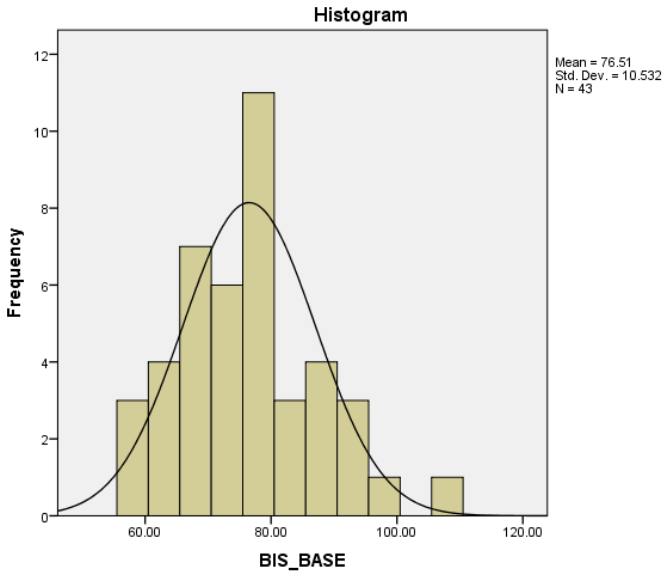
6) Mindfulness practice & enquiry 15 mins

Appendix 17a Tests for normality – Histograms

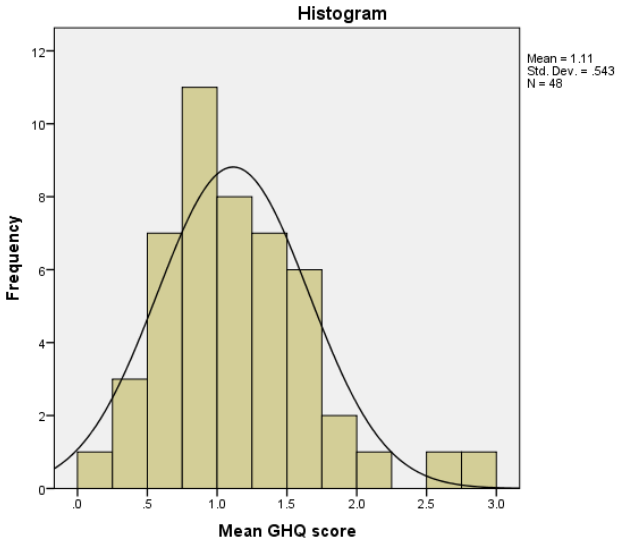
Histograms, with skewness and kurtosis scores provided underneath



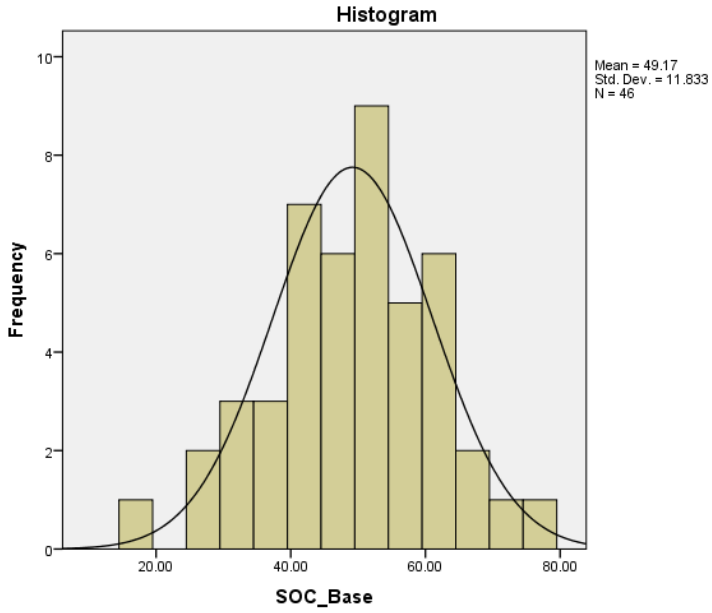
Performance on the TCS was normally distributed, skewness= -0.03 (SE=0.34), kurtosis= -0.57 (SE = 0.67)



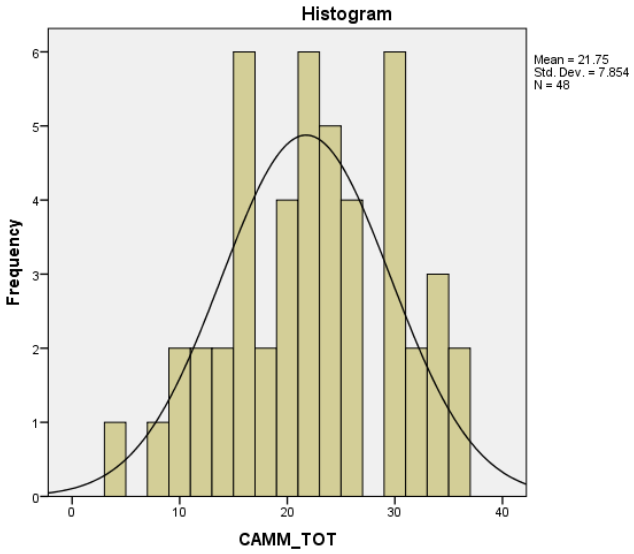
Performance on the BIS-11 was normally distributed, skewness= 0.54 (SE=0.36), kurtosis= 0.58 (SE= 0.71)



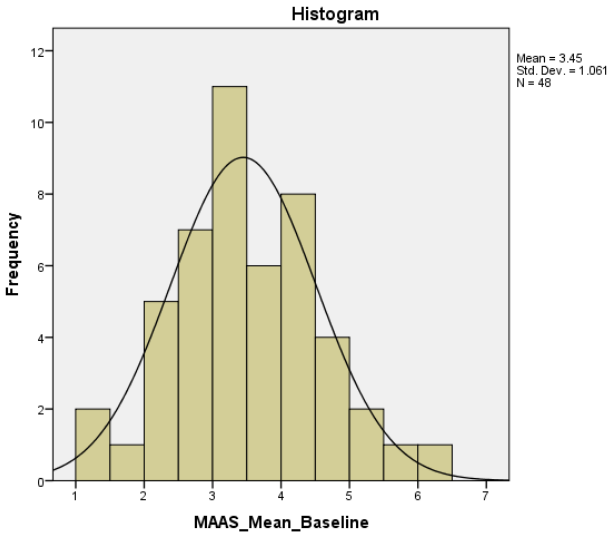
Performance on the GHQ-12 was normally distributed, skewness= 0.85 (SE=.34), kurtosis=1.10 (SE= .67)



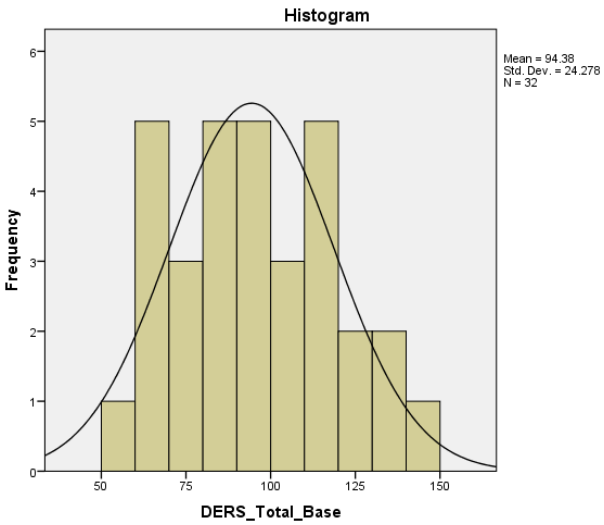
Performance on the SOC-13 was normally distributed, skewness= -.08 (SE=.45), kurtosis= -.54 (SE =.87)



Performance on the CAMM was normally distributed, skewness= -.09 (SE=.34), kurtosis = -.60 (SE = .67)



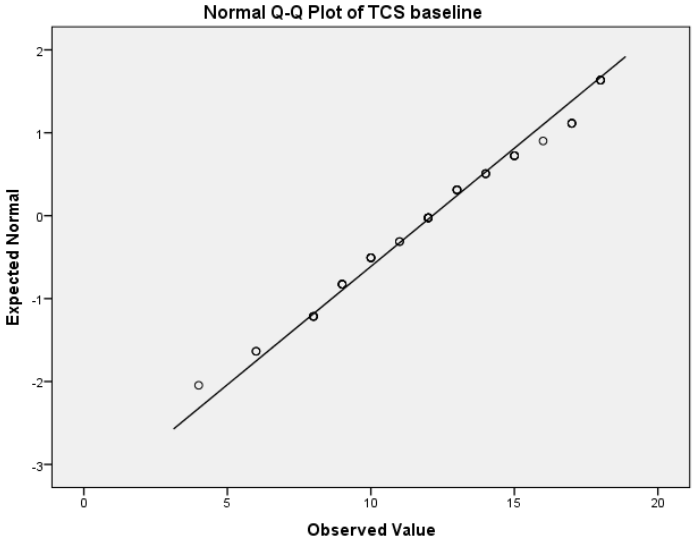
Performance on the MAAS was normally distributed, skewness=.08 (SE=.34), kurtosis = -.01 (SE =.67)

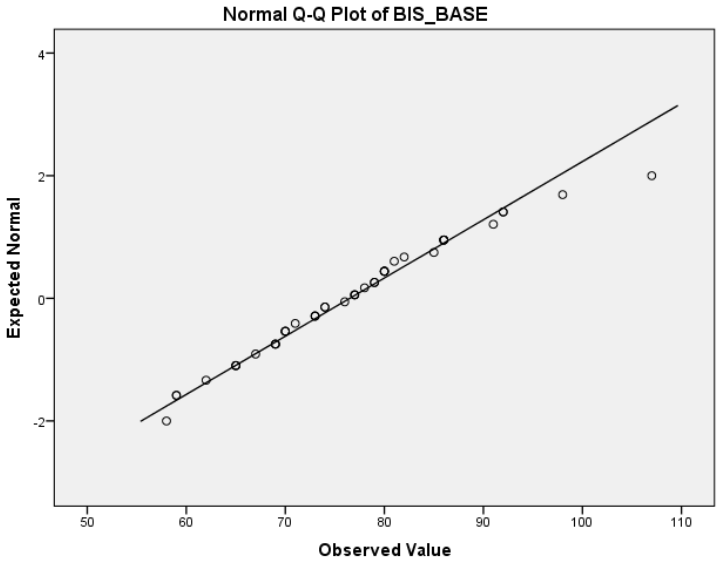


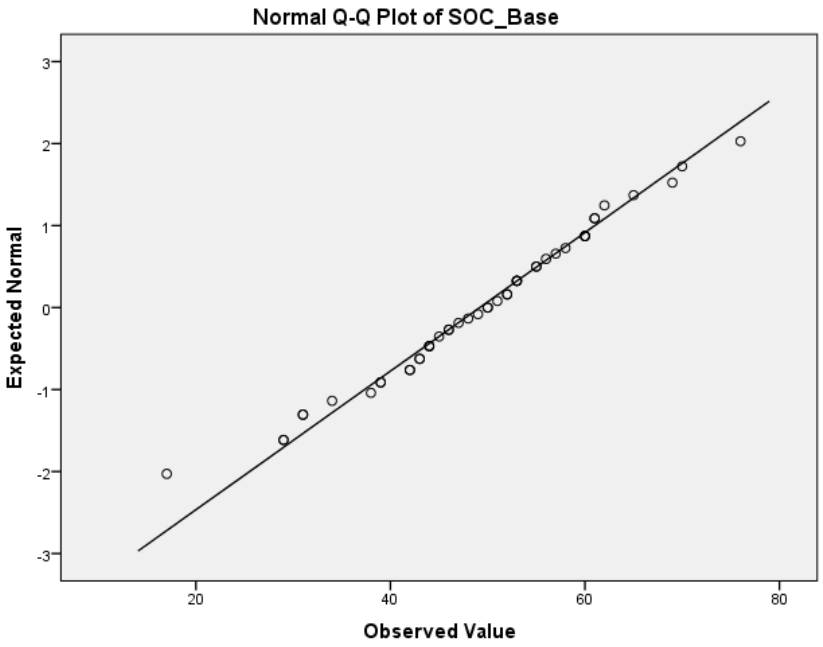
Performance on the DERS was normally distributed, skewness= .07 (SE=.43), kurtosis = -.97 (SE = .83)

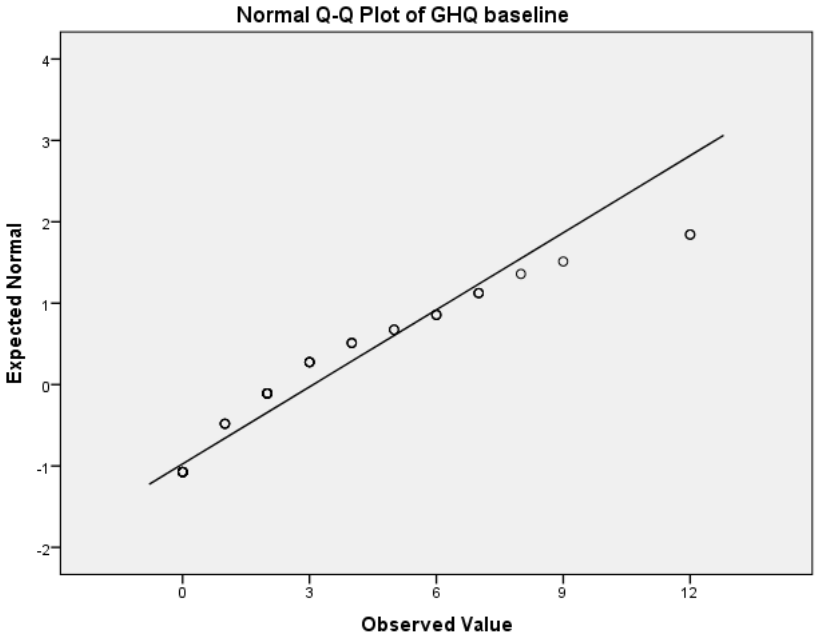
Appendix 17b Tests for normality – P-P plots

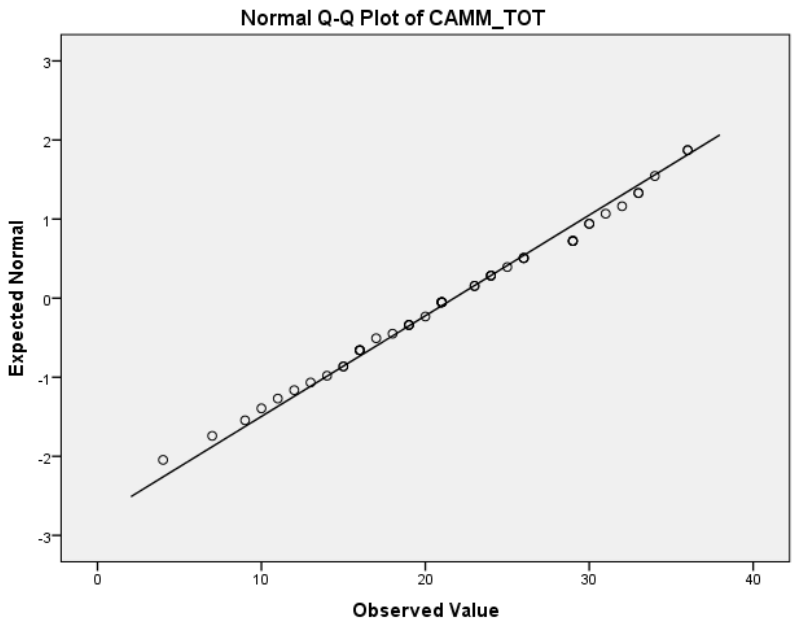
P-P plots for the seven self-reported questionnaires

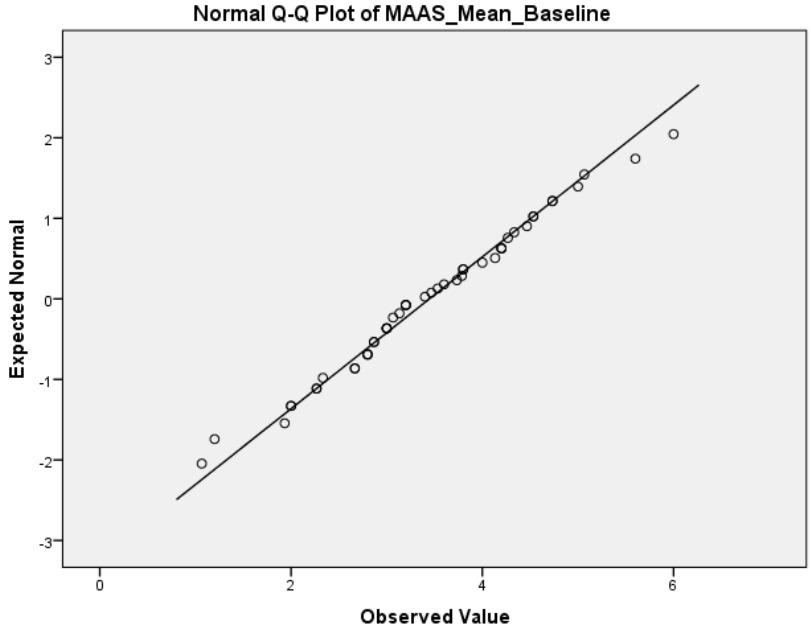


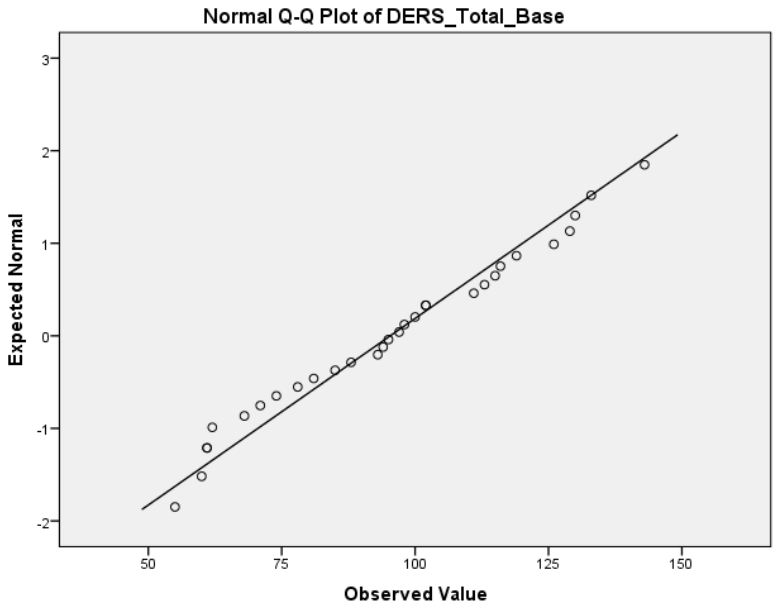



Normal Q-Q Plot of SOC_Base
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
20
40
60
80


Normal Q-Q Plot of GHQ baseline
Expected Normal
Observed Value
4
3
2
1
0
-1
-2
0
3
6
9
12


Normal Q-Q Plot of CAMM_TOT
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
0
10
20
30
40


Normal Q-Q Plot of MAAS_Mean_Baseline
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
0
2
4
6


Normal Q-Q Plot of DERS_Total_Base
Expected Normal
Observed Value
3
2
1
0
-1
-2
50
75
100
125
150

Appendix 18 Missing values

Missing values for baseline measures

Measures (Baseline)	Completion (n=48)	Specific question (number of missing values; ID)
TCS	100%	
CAMM	100%	
MAAS	98%	Q12 (1; PM15)
SOC-13	96%	Q2 (1; PM15) Q3 (1; PM15) Q9 (1; PM35)
GHQ-12	94%	Q8 (1; PM05) Q9 (1; PM42) Q12 (2; PM15 & PM42)
DERS	94%	Q13 (1; PM42) Q14 (1;PM42) Q15 (1; PM42) Q16 (1; PM42) Q21 (1; PM44) Q28 (1;PM44) Q29 (1;PM44) Q30 (1;PM44) Q31 (1; PM34)
BIS-11	92%	Q8 (1;PM19) Q10 (1; PM20) Q13 (1; PM34) Q15 (2;PM15 &PM20) Q17 (2;PM15 &PM20) Q18 (1;PM15) Q19 (1;PM15) Q21 (1;PM15) Q25 (1;PM15) Q28 (1;PM15) Q29 (1; PM15) Q30 (1; PM15)

Missing value for post intervention follow up

Measures (Post)	**Completion (n=32*)**	**Specific question missing (number of missing values; ID)**
TCS	100%	
CAMM	100%	
SOC-13	100%	
DERS	100%	
BIS-11	98%	Q5 (1; PM49)
GHQ-12	98%	Q9 (1; PM37)
MAAS	98%	Q12 (1; PM49)

*For DERS n=27 (group 1 (n=5) were not given this baseline measure)

Appendix 19 Reducations and increases in 'caseness' as measured by the GHQ-12 at post-intervention

Reductions in 'Caseness' at post-intervention

ID Number	GHQ-12	
	Baseline score	Post score
PM03	7	2
PM06	5	0
PM08	5	2
PM09	4	0
PM19	9	0
PM25	6	NC
PM26	3	NC
PM27	7	3
PM30	8	5
PM31	6	4
PM32	3	NC
PM35	3	1
PM36	3	1
PM37	3	1
PM40	3	1
PM45	12	NC
PM47	6	NC
PM49	4	1
PM50	7	NC
PM51	12	12
PM52	4	1

ID = Identification number NC = Not completed at the time point
Level indicative of 'case-ness' are ≥ 3

Increases in 'caseness' at post-intervention

ID Number	Caseness	
	Baseline	Post
PM17	2	5
PM22	2	3
PM23	1	4

Appendix 20 Results from one-way ANOVA for cluster effects

```
ONEWAY Age BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.483	6	.414	.485	.816
Within Groups	34.996	41	.854		
Total	37.479	47			

```
ONEWAY Ed_complete BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

Completed school

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.525	6	.421	.586	.740
Within Groups	29.454	41	.718		
Total	31.979	47			

```
ONEWAY TotalLength BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

What is the length of your sentences?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23306.410	6	3884.402	1.207	.323
Within Groups	128773.058	40	3219.326		
Total	152079.468	46			

```
ONEWAY Sentence_Length BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

Less that four years i.e. 50 months or more that four years

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.121	6	.354	1.835	.117
Within Groups	7.708	40	.193		
Total	9.830	46			

```
ONEWAY CS_TOT BIS_MEAN GHQ_TOT_SCORE MM_MEAN SOC_TOT MAAS_MEAN DERS_TOT
BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TCS baseline	Between Groups	140.714	6	23.452	2.199	.063
	Within Groups	437.265	41	10.665		
	Total	577.979	47			
Mean BIS score	Between Groups	1.461	6	.243	1.898	.104
	Within Groups	5.259	41	.128		
	Total	6.720	47			
GHQ baseline	Between Groups	66.613	6	11.102	1.125	.367
	Within Groups	375.032	38	9.869		
	Total	441.644	44			
Mean MM score	Between Groups	5.859	6	.977	1.188	.332
	Within Groups	33.717	41	.822		
	Total	39.577	47			
SOC baseline	Between Groups	373.643	6	62.274	1.057	.405
	Within Groups	2297.835	39	58.919		
	Total	2671.478	45			
Mean MAAS score	Between Groups	4.914	6	.819	.700	.651
	Within Groups	47.991	41	1.171		
	Total	52.905	47			
DERS baseline	Between Groups	1378.171	4	344.543	.519	.722
	Within Groups	15925.139	24	663.547		
	Total	17303.310	28			

```
ONEWAY TSC_Diff_Post BIS_ChangeScore SOC_ChangeScore GHQ_ChangeScore
MAAS_ChangeScore CAMM_ChangeScore DERS_ChangeScore BY Group
  /MISSING ANALYSIS.
```

Oneway

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TSC_Diff_Post	Between Groups	62.457	6	10.409	.777	.595
	Within Groups	334.762	25	13.390		
	Total	397.219	31			
BIS_ChangeScore	Between Groups	240.614	6	40.102	.787	.590
	Within Groups	1070.100	21	50.957		
	Total	1310.714	27			
SOC_ChangeScore	Between Groups	1123.250	6	187.208	1.163	.358
	Within Groups	3863.524	24	160.980		
	Total	4986.774	30			
GHQ_ChangeScore	Between Groups	24.613	6	4.102	.584	.740
	Within Groups	154.629	22	7.029		
	Total	179.241	28			
MAAS_ChangeScore	Between Groups	4.223	6	.704	.755	.612
	Within Groups	23.317	25	.933		
	Total	27.540	31			
CAMM_ChangeScore	Between Groups	179.352	6	29.892	.726	.632
	Within Groups	1028.648	25	41.146		
	Total	1208.000	31			
DERS_ChangeScore	Between Groups	2329.267	4	582.317	1.357	.290
	Within Groups	7293.324	17	429.019		
	Total	9622.591	21			

Appendix 21 Regression models, without baseline GHQ-12 scores

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644[a]	.415	.302	2.98963

a. Predictors: (Constant), Mean TCS score, Completed school, percentage of those who completed the whole programme , Age, Meditation or not

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	20.916	11.756		1.779	.087		
	Age	-.705	.593	-.180	-1.189	.245	.978	1.022
	Completed school	-.207	.627	-.050	-.330	.744	.969	1.032
	Meditation or not	-.872	1.430	-.097	-.609	.548	.896	1.116
	percentage of those who completed the whole programme	-.013	.016	-.120	-.773	.446	.941	1.063
	Mean TCS score	-2.524	.666	-.575	-3.788	.001	.977	1.024

a. Dependent Variable: TSC_Diff_Post

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.558[a]	.311	.154	6.40777

a. Predictors: (Constant), BIS_BASE, Meditation or not, Completed school, percentage of those who completed the whole programme , Age

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	18.129	26.117		.694	.495		
	Age	.023	1.381	.003	.017	.987	.863	1.159
	Completed school	1.931	1.463	.242	1.320	.200	.928	1.078
	Meditation or not	.442	3.323	.025	.133	.895	.906	1.104
	percentage of those who completed the whole programme	-.021	.036	-.111	-.599	.556	.905	1.105
	BIS_BASE	-.314	.137	-.441	-2.289	.032	.844	1.185

a. Dependent Variable: BIS_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.706[a]	.498	.397	10.00854

a. Predictors: (Constant), SOC_Base, Completed school, Meditation or not, Age, percentage of those who completed the whole programme

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	63.045	41.935		1.503	.145		
Age	-.817	2.014	-.059	-.406	.688	.959	1.042
Completed school	-4.089	2.138	-.273	-1.913	.067	.988	1.012
Meditation or not	-5.784	5.134	-.168	-1.127	.271	.906	1.104
percentage of those who completed the whole programme	-.051	.057	-.137	-.898	.377	.867	1.153
SOC_Base	-.648	.147	-.655	-4.424	.000	.916	1.092

a. Dependent Variable: SOC_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300[a]	.090	-.085	6.50327

a. Predictors: (Constant), CAMM_TOT, percentage of those who completed the whole programme , Completed school, Age, How long have you been in Polmont?

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	8.146	26.934		.302	.765		
Age	.129	1.303	.019	.099	.922	.944	1.059
Completed school	-.985	1.385	-.137	-.711	.483	.923	1.083
Meditation or not	-2.830	3.097	-.180	-.914	.369	.890	1.124
percentage of those who completed the whole programme	-.031	.035	-.171	-.893	.380	.942	1.062
CAMM_TOT	-.138	.154	-.175	-.899	.377	.903	1.107

a. Dependent Variable: CAMM_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.508[a]	.258	.115	.88650

a. Predictors: (Constant), MAAS_Mean_Baseline, percentage of those who completed the whole programme , Completed school, Age, Meditation or not

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.913	3.494		1.120	.273		
Age	-.076	.176	-.074	-.432	.669	.978	1.023
Completed school	-.324	.186	-.300	-1.743	.093	.966	1.036
Meditation or not	-.362	.428	-.152	-.844	.406	.879	1.138
percentage of those who completed the whole programme	-.002	.005	-.061	-.349	.730	.940	1.063
MAAS_Mean_Baseline	-.407	.172	-.410	-2.370	.026	.952	1.050

a. Dependent Variable: MAAS_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.529[a]	.280	.055	20.80973

a. Predictors: (Constant), DERS_Total_Base, Completed school, Age, Meditation or not, percentage of those who completed the whole programme

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	22.059	96.839		.228	.823		
Age	-.713	4.802	-.032	-.149	.884	.972	1.029
Completed school	8.041	5.256	.327	1.530	.146	.988	1.012
Meditation or not	13.704	16.675	.188	.822	.423	.857	1.167
percentage of those who completed the whole programme	-.040	.160	-.058	-.248	.807	.827	1.209
DERS_Total_Base	-.343	.206	-.396	-1.664	.116	.797	1.255

a. Dependent Variable: DERS_ChangeScore

Appendix 22 Regression models, including GHQ-12 baseline scores

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651[a]	.423	.285	3.02695

a. Predictors: (Constant), Mean GHQ score, Age, Completed school, Meditation or not, percentage of those who completed the whole programme , TCS baseline

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	20.875	11.903		1.754	.092		
	Age	-.701	.601	-.179	-1.167	.254	.978	1.022
	Completed school	-.246	.638	-.060	-.385	.703	.959	1.043
	Meditation or not	-.888	1.448	-.098	-.613	.545	.896	1.116
	percentage of those who completed the whole programme	-.016	.017	-.151	-.915	.369	.846	1.182
	TCS baseline	-.678	.186	-.617	-3.651	.001	.806	1.240
	Mean GHQ score	.705	1.170	.106	.602	.552	.743	1.345

a. Dependent Variable: TSC_Diff_Post

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	.346	.159	6.38789

a. Predictors: (Constant), BIS_BASE, Meditation or not, Completed school, Mean GHQ score, Age, percentage of those who completed the whole programme

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16.663	26.072		.639	.530		
	Age	.115	1.379	.016	.084	.934	.859	1.164
	Completed school	1.616	1.488	.203	1.086	.290	.891	1.122
	Meditation or not	.387	3.313	.022	.117	.908	.905	1.105
	percentage of those who completed the whole programme	-.032	.037	-.168	-.870	.394	.837	1.195
	Mean GHQ score	2.731	2.561	.205	1.066	.298	.843	1.186
	BIS_BASE	-.344	.140	-.483	-2.463	.022	.810	1.235

a. Dependent Variable: BIS_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.713[a]	.508	.385	10.11220

a. Predictors: (Constant), SOC_Base, Completed school, Meditation or not, Age, percentage of those who completed the whole programme , Mean GHQ score

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	74.082	45.207		1.639	.114		
Age	-.960	2.045	-.069	-.469	.643	.950	1.053
Completed school	-3.808	2.197	-.254	-1.734	.096	.955	1.047
Meditation or not	-5.623	5.193	-.163	-1.083	.290	.904	1.106
percentage of those who completed the whole programme	-.045	.058	-.121	-.780	.443	.849	1.177
Mean GHQ score	-3.502	5.003	-.148	-.700	.491	.456	2.193
SOC_Base	-.750	.208	-.758	-3.610	.001	.465	2.151

a. Dependent Variable: SOC_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764[a]	.584	.494	1.80049

a. Predictors: (Constant), Mean GHQ score, Age, Completed school, Meditation or not, percentage of those who completed the whole programme

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	23.211	7.214		3.218	.004		
Age	-1.168	.362	-.438	-3.228	.004	.980	1.021
Completed school	.472	.399	.163	1.183	.249	.951	1.052
Meditation or not	.961	.868	.157	1.107	.280	.904	1.106
percentage of those who completed the whole programme	-.001	.011	-.020	-.139	.891	.846	1.183
Mean GHQ score	-2.710	.656	-.594	-4.131	.000	.874	1.144

a. Dependent Variable: GHQ_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.508[a]	.258	.115	.88650

a. Predictors: (Constant), MAAS_Mean_Base, percentage of those who completed the whole programme , Completed school, Age, Meditation or not

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.913	3.494		1.120	.273		
Age	-.076	.176	-.074	-.432	.669	.978	1.023
Completed school	-.324	.186	-.300	-1.743	.093	.966	1.036
Meditation or not	-.362	.428	-.152	-.844	.406	.879	1.138
percentage of those who completed the whole programme	-.002	.005	-.061	-.349	.730	.940	1.063
MAAS_Mean_Base	-.407	.172	-.410	-2.370	.026	.952	1.050

a. Dependent Variable: MAAS_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.324[a]	.105	-.068	6.44973

a. Predictors: (Constant), CAMM_TOT, percentage of those who completed the whole programme , Completed school, Age, Meditation or not

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	26.545	26.633		.997	.328		
Age	-.246	1.232	-.036	-.200	.843	.925	1.081
Completed school	-1.169	1.300	-.163	-.899	.377	.919	1.088
Meditation or not	-3.073	2.903	-.195	-1.059	.300	.888	1.126
percentage of those who completed the whole programme	-.004	.035	-.020	-.103	.919	.817	1.224
Mean GHQ score	-6.024	2.797	-.520	-2.154	.041	.518	1.931
CAMM_TOT	-.405	.190	-.514	-2.132	.043	.520	1.925

a. Dependent Variable: CAMM_ChangeScore

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.557[a]	.311	.035	21.02874

a. Predictors: (Constant), DERS_Total_Base, Completed school, Age, Meditation or not, percentage of those who completed the whole programme , Mean GHQ score

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	21.291	97.863		.218	.831		
Age	-.350	4.873	-.016	-.072	.944	.964	1.037
Completed school	6.962	5.473	.283	1.272	.223	.931	1.075
Meditation or not	11.859	17.001	.163	.698	.496	.842	1.188
percentage of those who completed the whole programme	-.083	.170	-.121	-.489	.632	.747	1.339
Mean GHQ score	9.065	11.087	.255	.818	.426	.473	2.113
DERS_Total_Base	-.468	.258	-.540	-1.811	.090	.518	1.931

a. Dependent Variable: DERS_ChangeScore